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The OIL WEEKLY

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LOOKING AHEAD
. . . with the Editor

THE question of when a wire rope should be replaced is as difficult to answer in general terms as it is important. There are no hard-and-fast rules that tell just when to remove rope from all installations. However, two considerations apply in every case: Safety and Economy.

Thus, the question to be answered really is, "How early should a rope be removed for safety's sake; and how late can it be removed for economy?"

A practical consideration of these two questions will constitute the fourth of the series of articles on saving wire rope, the third of which appears in the current issue.

The Trend to Power Rigs with Internal Combustion Engines ...is Fast Becoming the Standard Practice... due to their greater usefulness, less moving and maintenance costs.

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The Changing Panorama

Dissatisfaction With OPA at High Point

DISSATISFACTION both in and out of Congress over OPA policies and efforts has reached such a point that the agency is in a most difficult spot.

There is a definite move under way in Congress to dismember OPA and transfer its price and rationing powers to other government bureaus. Congressional opposition has wide support among important groups. Many Congressmen are stirred up in general by OPA's failure to handle food prices and rationing satisfactorily. Their ranks are swelled by delegates from agricultural and oil sections, plus Eastern members critical of OPA's handling of the gasoline situation. Each week sees additional delegates joining the opposition group, such as Middle West Congressmen fighting threatened extension of drastic East Coast gasoline restrictions to their territories.

Additional difficulties are piling up from internal dissension within the agency itself, which involve both disagreement with policies and a contest for power within its ranks. This situation has resulted in the resignation of a number of officials.

Administrator Brown almost daily is reported as resigning or being on his way out because of the combination of troubles that have beset him.

These conditions lead many to believe that OPA is disintegrating, and that only a quick and thorough action of the right type on prices and rationing, together with a complete housecleaning, can save it.

Petroleum Administrator Ickes did not assist the agency any when he demanded that WPB give PAW full control over oil affairs and that OPA reconsider its stand on crude prices.

Oil Price Nearing Showdown Stage

THE stage has been set in recent weeks for a definite and early showdown on oil prices. Whether recent developments have improved the industry's chances for better ceilings is a matter of opinion.

Some view mounting criticism of OPA and threatening Congressional action against the agency as decidedly favorable to petroleum producers. This group points out that much of the dissatisfaction springs from the way OPA has handled gasoline rationing and oil prices. This is evidenced by the introduction of a number of bills that would give PAW control of oil rationing and price, and the introduction of other measures that would increase the price of crude oil. Ickes' request that OPA reconsider its stand on oil prices, they say, will give the agency an easy way out of this predicament.

Others feel differently. They think that while OPA might like to appease those clamoring for higher oil prices, that it cannot do so while under fire for failure to curb food prices without stirring up a bigger hornet's nest. Those in this group believe that this factor will more than offset mounting pressure for higher oil ceilings, and that for this reason OPA will stand firm in its attitude toward petroleum prices.

OPA Again Speaks Without Facts

MANY producers have in effect given themselves higher crude-oil prices without changes in legal ceilings, by eliminating discounts and other prewar cut-rate contracts, asserts Sumner T. Pike, OPA's oil advisor, who adds this is one reason for refusing a flat increase in prices.

There have been a few cases of this nature, but they have not amounted to any sizeable volume. Producers are very cagey about long-term flat-rate contracts, especially when prices are low as has been the case for the past decade. Most contracts are based on posted market prices, maybe for a certain area, a particular field or even refined-product prices. Any general crude price advance would immediately affect most oil purchasing contracts. We challenge Pike to produce proof that substantial quantities of oil are now selling at higher prices because of contract expiration or elimination of discounts.

Pike weakened his own argument, on being questioned, by admitting he had no figures on the extent of such increases as he charged. This itself was an admission that his opinion was not based on accurate data.

Pike also said it is the OPA policy to grant specific increases in crude prices where necessary to stimulate production or compensate for increased cost, which raises additional pertinent questions. Does not production need to be stimulated in every region of the country? Have operating costs advanced in only scattered regions, and not everywhere?

There is only one and possibly two areas where additional production is not desirable and useful at this moment. These are West Texas and Gulf Coast territories, where limited transportation facilities are below current producing ability. However, prospects of acute difficulties a year hence in meeting consumption requirements, indicate it would be wise to try and stimulate production even in these two regions, bearing in mind it takes a year or more to develop substantial production in either new fields or by secondary-recovery programs.

It is certain that operating costs have not advanced in only specific regions, the same set of conditions applying to all. Numerous factual data reports have been filed with OPA showing how operating costs have increased. Apparently these have been ignored. Meanwhile, costs continue rising. For instance, competition for manpower has become so intense companies now find it expedient to adopt longer work-weeks to meet wage scales paid by other industries. The situation is becoming acute, constituting so serious a problem with large companies that it is difficult to understand how small operators can continue to stay in business. Higher taxes and other factors also have increased operating costs materially. If it is OPA's policy to compensate for increased costs it is hard to see how it can continue to ignore oil's price ceilings.

It appears that OPA is grabbing at additional straws, without consideration of facts, for the purpose of further confusing the issue.

Big Oil Market After the War

WE WERE talking the other day one of the high executives of one of the world's largest oil companies. The conversation turned to what will happen after the war. We found him very optimistic as to the market for petroleum products when the clouds of war have been blown away.

He expressed the belief that the

world-wide market for petroleum would take a decided upturn. World War No. 1, he said, helped to expand the market for petroleum products and World War No. 2 will have an even greater effect. He referred to the vast amount of automotive equipment of different kinds which we have been exporting for war work, commented on the tremendous amount of road building which has taken place all over the world, in Africa, in Asia, in North and Central America. These roads will open up new areas to trade with motor transportation, he believes. Air travel will increase.

Rehabilitation will require tremendous quantities of petroleum all over the world, he thinks.

"Where is all the money coming from to pay for this rehabilitation and the petroleum it will require?" we asked.

"I do not know the answer to that one," he replied, "but I do know that money was forthcoming for rehabilitation after the other war, and when things have to be rebuilt, or channels of trade extended, the money for it usually can be had."

Gasoline Shortage Newest Oil Worry

DESPITE rationing, feared surplus of gasoline has failed to materialize, and now there is developing a fear that a shortage of this product may occur. This complete reversal of opinion results from stocks of the commodity dwindling sharply during the past year, especially in the area east of the Rocky Mountains.

Between January 2 and June 5, this year, gasoline stocks located east of the Rocky Mountains declined 2,205,000 barrels in contrast with an addition of 2,467,000 barrels during the corresponding period of the preceding year. This change in inventory trends, plus drafts during the latter half of 1942, left only 59,854,000 barrels of gasoline in storage east of the Rockies on June 5. A year previous there had been 76,711,000 barrels, or 16,867,000 barrels more.

Much of the decline has been in Atlantic Seaboard states, but every refining area east of the Rockies has smaller gasoline stocks today than a year ago. Even in the Gulf Coast area, where much of the nation's gasoline is manufactured and where transportation difficulties limit deliveries, stocks of gasoline are declining.

The reduction in stocks, of course, is the result of curtailed production and of higher consumer rates than anticipated. While the situation could be cured by adjusting refining yields back to normal, this cannot be done if the industry is to meet requirements for aviation gasoline, fuel oil and other essential war products.

Charging of larger volumes to stills whenever production and transportation permit seems to be the only practical method of preventing continued reductions in gasoline stocks, which would cause an eventual shortage.

California Drilling Strikes Fast Pace

DRILLING in California has struck a pace that promises a completion total fully double that of 1942 and larger than the more normal 1941 rate. In the first five months this year a total of 615 wells have been completed, as compared with 325 and 445 in the corresponding periods of 1942 and 1941, and in contrast with an annual total of 789 last year and 1118 in 1941. Drilling momentum has gained appreciably in recent months. The weekly average rate of completing wells having risen from 23 in February this year, to 28 in March, to 31 in April and 30 in May. During 1942, May saw only 14 wells completed per week, April 12 and March 7 completions. On June 1, 1943, there were 293 rigs in operation in the state as compared with 290 in May, 265 in April and 222 in March. The recent gain in drilling operations is due to higher prices on heavy oils and relaxation of government spacing regulations.

This year's faster tempo of drilling is in great measure confined to intensified efforts to find low-gravity fuel-oil-yielding crudes on the West Coast. Therefore, due to concentration of efforts in shallow areas, the average depth of California completions has declined to 3241 feet in contrast with 5264 feet per well in the first five months of 1942. However, the gain in number of wells completed has been sufficient to offset the reduction in average depth, and the state has drilled 1,993,192 feet of hole this year as compared with 1,626,629 feet during the corresponding period of 1942.

Demand for materials required for the present-day type of California drilling is greatly different from that of former years. For one thing, the completion of hundreds of small shallow wells has created an abnormal requirement for pumping equipment. Weekly completions nowadays frequently show nine out of ten wells completed to be on the pump. The tubular goods required also has changed character because of the concentration in shallow areas.

Oil Is Ammunition

If the United Nations win this war through better performance of their aircraft, then they are in a fair way toward winning it today. Primarily, the reason for mightier bombers and pursuit planes is that aviation fuel far better than 100-octane gasoline, once the standard for perfection, now powers their engines. High-octane fuel is in mass production in the United States. It enables modern airplane engines to have a higher compression ratio and to realize hidden resources of extra power, mysteriously locked in the molecules of the fuel. This additional energy means quicker take-off speed, longer range, higher altitude, heavier loads — in short, greater maneuverability, which gives Allied planes the vital kick that may mean the difference between winning a battle and losing it.—*Fortune Magazine, June, 1943, issue.*

Rubber Unimportant Market for Oil

TO SUPPLY all the butadiene from petroleum required by the government's present rubber program for an entire year will take only 2/10 of 1 percent of the United States annual production of crude oil, or less than 1 day's output.

Out of a total of 656,860 tons of butadiene per year to be produced, 436,800 tons will be made from petroleum sources. In weight this is equivalent to 2,750,000 barrels of crude oil and condensate a year, or 7500 barrels a day, whereas current United States crude and distillate production is about 4,200,000 barrels daily.

The primary purpose of the petroleum industry as regards rubber manufacture is not to supply the relatively unimportant market that will be provided by this new petroleum derivative, but to supply needs of the armed forces, and help keep automobiles, trucks, and buses in operation.

The value of petroleum raw materials in a dollar's worth of synthetic rubber is only 10 cents, whereas $15 to $20 worth of products and services are sold by oil companies and their dealers for every dollar's worth of tires.

More Wildcats Drilled in May But Results Poor

By L. J. LOGAN
Associate Editor

Sharp increase in number of discoveries results from greatly expanded completion rate, but new producing areas continue predominantly of poor quality and below wartime needs

WILDCATTING was materially expanded in May, and there was a sharp increase in discoveries over those in the preceding several months. But the overall results were disappointing, as the new producing areas were predominantly of mediocre or poor rating. During the month, 65 wildcats and semi-wildcats discovered new fields, substantially extended established fields, or opened new pay zones for production; as compared with only 46 productive exploratory tests completed in April and 43 in March. Despite the increase in the number of productive wildcats, however, it is indicated that less new oil was found in May than in April or March. On the average, the discoveries of May furnished probably only about one half as much new oil as the discoveries of April and March.

Among all the 65 discoveries of May there were probably only two that offered possibilities of developing into oil reserves of 20 million barrels or more. (One of them was the new deep, Ordovician-pay field of Winkler County, West Texas, opened by Magnolia Petroleum Company; and the other was the new pay (Rodessa) established in the recently discovered New Hope field of Franklin County, East Texas, where major production also had been opened a month earlier in the deeper Travis Peak sand.)

The pronounced increase in the number of discoveries recorded during May reflected the sharply intensified search for oil that the industry had undertaken, in response to the urgent wartime necessity for new producing areas; although as just stated, the rewards were disappointing. During May, 345 wildcats, including semi-wildcats and tests of previously untested horizons, were completed, as compared with only 250 in April and 248 in March. While the productive wildcats completed in May numbered 65 against 46 in April and 43 in March, there was also an increase in dry hole completions to 280 from 204 in April and 205 in March.

Results of Wildcatting in United States During May and to Date for Year

This report embraces approximately one full month's wildcatting, although not exact results for calendar month. It includes some wells completed in late April but omits some completed in late May.

STATE OR DISTRICT	MONTHLY WILDCAT COMPLETIONS: Details for May, 1943: Productive: New Fields: *Oil	New Fields: Gas	New Pays: *Oil	New Pays: Gas	Extensions: *Oil	Extensions: Gas	Unproductive: Wildcats	Unproductive: ‡Semi-Wildcats	Total Wildcats: May, 1943	April, 1943	†May, 1942	CUMULATIVE WILDCAT COMPLETIONS: FIRST 5 MONTHS: Details for January-May, 1943: Productive: New Fields: *Oil	New Fields: Gas	New Pays: *Oil	New Pays: Gas	Extensions: *Oil	Extensions: Gas	Unproductive: Wildcats	Unproductive: ‡Semi-Wildcats	Total Wildcats Jan.-May, 1943	Total Wildcats Except Extensions or Semi-Wildcat Tests: Total 1943	Total 1942	Productive 1943	Productive 1942
Alabama	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	...	...
Arkansas	1	...	...	...	...	...	6	...	7	5	1	2	...	3	...	2	1	15	1	24	20	9	5	4
California	1	...	...	...	...	...	25	...	26	17	9	2	2	1	...	2	1	91	...	99	96	39	5	3
Colorado	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	1	...	...	...
Georgia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...
Illinois	1	...	4	...	7	...	30	...	42	42	45	8	1	18	...	17	...	142	...	186	169	197	27	30
Indiana	...	...	...	...	1	...	10	...	11	7	9	2	...	...	...	4	...	31	...	37	33	24	2	8
Kansas	7	...	1	...	...	...	48	...	56	33	38	21	...	2	...	2	...	161	3	189	184	148	23	23
Kentucky	1	...	...	...	...	...	7	...	8	1	1	3	...	...	...	...	...	19	...	22	22	4	3	...
Louisiana	...	...	2	1	2	...	10	...	15	10	11	6	1	4	1	4	...	36	3	55	48	73	12	20
North Louisiana	...	...	...	1	2	...	7	...	10	7	5	...	1	...	1	3	...	27	2	34	29	35	2	2
South Louisiana	...	...	2	...	...	...	3	...	5	3	6	6	...	4	...	1	...	9	1	21	19	38	10	18
Michigan	2	...	...	...	...	...	14	1	17	16	15	8	2	...	...	1	...	59	6	76	69	65	10	6
Mississippi	...	...	...	...	...	...	2	...	2	1	5	1	...	...	...	...	...	8	...	9	9	16	1	...
Missouri	...	...	...	...	...	...	4	...	4	...	...	1	...	...	...	...	...	5	...	6	6	...	1	...
Montana	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	1	...	1	...	2	1	...	...	...
Nebraska	...	...	...	...	...	...	...	...	...	...	5	...	...	...	...	...	...	...	...	...	...	10	...	...
New Mexico	...	1	...	...	...	...	3	...	4	7	1	...	1	...	...	...	...	25	...	26	26	12	1	5
Oklahoma	...	2	1	...	...	1	19	...	23	27	24	12	4	1	...	5	1	110	1	134	127	111	17	27
Texas	19	3	4	...	1	...	100	1	128	78	87	50	9	11	1	12	...	348	18	449	419	492	71	98
East Texas Border Co.'s.	...	...	...	...	1	...	...	...	1	1	1	...	...	...	...	1	...	1	...	2	1	3	...	1
Rest of East Texas	1	1	1	...	...	...	11	...	14	9	2	3	2	1	...	...	...	32	1	39	38	39	6	1
North Texas	8	...	3	...	...	...	32	...	43	18	24	16	...	6	...	...	...	95	2	119	117	104	22	18
West Central Texas	3	...	...	...	...	...	8	...	11	9	8	6	2	1	...	...	...	34	1	44	43	58	9	11
West Texas	3	...	...	...	...	...	7	...	10	5	13	5	1	...	...	1	...	26	1	34	32	62	6	10
Texas Panhandle	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	1	...	...	...
Gulf Coast, Upper	...	...	...	...	...	...	7	...	7	8	6	4	...	1	...	5	...	23	1	34	28	42	5	14
Gulf Coast, Lower	3	2	...	...	...	...	14	1	20	6	15	11	3	2	1	3	...	45	7	72	62	80	17	30
Southwest Texas	1	...	...	...	...	...	19	...	20	16	10	5	1	...	...	2	...	67	5	80	73	75	6	8
South Central Texas	...	...	...	...	...	...	2	...	2	6	8	...	...	...	...	...	...	24	...	24	24	29	...	2
Wyoming	...	...	1	...	1	...	...	...	2	4	...	1	...	2	...	2	...	2	...	7	5	4	3	3
Total United States	32	6	13	1	12	1	278	2	345	250	251	117	20	42	2	52	3	1,054	32	1,322	1,235	1,209	181	227

* Distillate included with oil discoveries. † Exclusive of semi-wildcat or extension tests. ‡ Extension tests.

Trends of Wildcat Completions

ITEM	April, 1943	May, 1943	January-May 1942	January-May 1943	January-May % Diff.
Including Semi-Wildcats:					
Total Completions	250	345	*	1,322	
Productive: Total	46	65	*	236	
Percent	18.4	18.9	*	17.8	
Dry: Total	204	280	*	1,086	
Percent	81.6	81.1	*	82.2	
Excluding Semi-Wildcats and Extensions:					
Total Completions	227	330	1,209	1,235	+ 2.1
Productive: Total	27	52	227	181	— 20.2
Percent	11 8	15.7	18.7	14.6	
Dry: Total	200	278	982	1,054	+ 7.3
Percent	88.2	84.3	81.3	85.4	
Discoveries:					
Oil: New Fields	17	30	130	107	— 17.6
New Pays	6	12	71	41	— 42.2
Extensions	18	12	*	50	
Distillate: New Fields	1	2	4	10	+150.0
New Pays		1	1	1	
Extensions			*	2	
Gas: New Fields	3	6	14	20	+ 42.5
New Pays		1	7	2	— 71.4
Extensions	1	1	*	3	

* Data on semi-wildcats not available for 1942.

Thus the ratio of successful tests was practically the same for the May wildcatting as for that of the preceding two months, 18.9 percent of total wildcats having been productive of oil, distillate, or gas.

In completing the total of 345 wildcats during May, the industry had pushed exploratory work closer to the level sought by the petroleum administrator's office. However, the wildcatting still was materially short of the rate of 4500 completions per year regarded by PAW as essential. The May completions were on the basis of only about 3700 per year, against rates of about 3100 per year in each of the two preceding months. (The 65 productive wildcats here considered are from the accompanying detailed table on individual discoveries, but the 280 wildcat dry holes are from weekly reports covering 5 weeks; hence the mentioned rate of 3700 per year for May.)

Preliminary ratings of the importance of the discoveries of May indicate that they probably will result ultimately in the addition of somewhere between 40 and 100 million barrels of oil to the nation's reserves; whereas similar rough estimates for April indicated 60 to 150 million barrels of new oil added and about the same for March as for April. These figures are very rough estimates not of reserves actually developed and made available but only of possible reserves that ultimately may be developed in drilling up the producing areas discovered in these recent months. In reality, many of these new fields so far have only one well, and much remains to be learned about them and their potentialities. However, the figures do take into consideration the types of fields involved, areas in which the discoveries are located, geophysical data,

[*Continued on page 34*]

New Oil and Gas Fields, New Pay Horizons and Extension Discoveries in the United States During May, 1943

This report embraces approximately one full month's discoveries. It includes some wells completed in late April but omits some completed in late May

County	Field	COMPANY, WELL AND LOCATION	Date Spudded	Date Completed	Total Depth (Feet)	Completion Horizon (Feet)	[1]Name, Character and Age of Producing Formation	[2]Initial Production, Method, and Choke	Gravity of Oil	[3]Structure; [4]Method of Discovery	Preliminary Estimates of Reserves Found; Remarks
		ARKANSAS—New Oil Field									
Calhoun	Hampton	Plaeld Oil Co.'s Freeman-Smith 4, ne nw 2-15s-14w, 8 mi ne Smackover-Stone Hill fld	3- 2-43	4- 8-43	4420	2514-2524 2534-2538	Meakin sand, U. Cret	P 35	18.0	Seis	Not considered important; shallow pumper of heavy oil.
		CALIFORNIA—New Oil Field									
Fresno	Wheatville	Superior of Calif.'s Kreyenhagen 81-22, ne ne ne 22-17-18, 5 mi se se Helm fld.	4- 3-43	5-24-43	9565	6348-6855	Sand, Mio	F 120; 1/8"	40	Ant.; Subsurf.	Thin sand; 1st well possibly will yield 200,000 bbls.; fld. may be in class with Riverdale, Helm, Raisin City flds., where prod. is spotted, every well a wildcat.
		ILLINOIS—New Oil Field									
Jefferson	Waltonville	Byars & Ellison's Jeff O. & G.1, se sw ne 32-3S-2e, 2½ mi sw Marcoe pool.		5- 4-43	2766	2666-2680	Bethel sand, U. Miss.	P 38	38.2		Field likely to be small; originally D. & A. in McClosky lime, well p. b. and comp. in Bethel sand; 40 bbls wtr. w 38 oil.
		ILLINOIS—Oil Field Extensions									
Franklin	Akin	Lario O. & G. Co.'s Franklin Co. Mining Co. 1, sw sw nw 36-6s-4e.	3-14-43	5-18-43	3156	3122-3150	Aux Vases sand, U. Miss	P 46	38.0		1+ mi s extension; though small, well indicates pool possibly is 2½ mi. long, n-s.
Hamilton	Dale-Hoodville Consld.	H. Gussman's Mead 1, se se nw, 23-5s-6e.	3-31-43	5-18-43	3222	3205-3214	Levias lime, L. Miss	P 143	36.0		1 mi ne extension; though 50 ft low on structure, well was fair producer and may extend pool at least 1 mi; 37 bbls wtr w 143 oil.
Jefferson	King	Seaboard's Eldridge Commun. 1, se se ne 3-4s-3e.	4-11-43	5-11-43	2907	2892-2907	Rosiclare sand, L. Miss	P 53	39.6		Thin well apparently on same structure as King pool and may extend prod to se no shows oil reptd in Aux Vases, which is King pool pay; 8 bbls wtr.
Wabash	Mt. Carmel	Superior's Veihman 1, nw sw nw 9-1s-12w	4- 3-43	5-11-43	2403	1498-1520 1563-1591 2175-2185	Biehl sand, Penn	P 126			1 mi n Mt. Carmel pool; though this was fair well, no wtr, dry, hole later drld ¼ mi to se indicates this well may not extend pool as far as first thought.
Wayne	Bennington	Schoonmaker's E. Fitch 1, se sw se 12-1n-9e, ¾ mi w original well in pool	4- 9-43	6- 1-43	3340	3146-3178	Bethel sand, U. Miss. Aux Vases sand, U. Miss	P 15			¾ mi w of original well in pool; no wtr in this well, but small T.P. indicates rather small pool.
White	Herald	W. C. McBride's Bayley 1, approx. sw sw se 3-7s-9e.	4-10-43	6- 1-43	3125	2684-2704	Cypress sand, U. Miss.	P 62			¾ mi nw Herald pool; though small, well caused drlg. flurry and may result in important extension; 7 bbls. wtr.
White	Phillipstown	Sun & Pure's Luta 1, se sw nw 30-4s-14w	4-13-43	5-25-43	3108	3035-3049 3054-3058	McClosky lime, L. Miss	P 68	38.4		1 mi n of prod; near fault separating pool from New Harmony fld, so its extension e probably will not be great; w limit this pool not yet defined in this area; no wtr in this well.
		ILLINOIS—New Oil Pays									
Gallatin	Inman West	Globe O. & R.'s Straub 1, nw nw nw 22-8s-9e	2-12-43	5-18-43	2928	2198-2209	Tar Springs sand, U. Miss	P 19			Triple completion in Tar Springs, Cypress, McClosky; 13 bbls wtr.
Wayne	Boyleston	Watkins Oil Co.'s Ferguson 1, w/2 ne sw 3-2s-7e		5- 4-43	3270	3085-3120	Aux Vases sand, U. Miss	P 110	39.6		May open up extensive Aux Vases prod in fld; this is workover well originally D. & A.; no wtr.
White	Calvin, North	N. Duncan's B. Metcalf 2, ne sw se 31-3s-14w	5- 3-43	6- 1-43	2896	2877-2896	Aux Vases sand, U. Miss	P 36			No water with oil.
White	Calvin, North	N. Duncan's H. L. Hon 3, approx se ne nw 6-4s-14w	4-25-43	5-18-43	1609	1503-1542	P. sand, Penn	P 134	30.0		One of several zones in Penn. in this fld showing saturation.
		INDIANA—Oil Field Extension									
Spencer	Enterprise	Damron, Gary & Savage's Alvin Frank 1, ne nw sw sec 36-7s-7w		5- -43	947	932- 947	Palestine sand, U. Chester, Miss	F 110			¾ mi n-ne of 10 bbl well comp in April, 1942, well has caused new interest in area.

		KANSAS—New Oil Fields									
Barber	Turkey Creek	Aladdin Pet. Co.'s National Gypsum Co. 1, sw nw se 20-30s-15w		5-29-43	4451	4435-4451	Conglomerate, Penn	F 750	38		More drlg needed to show possibilities.
Barber		Champlin Ref. Co.'s Allen 1, se nw se 22-32-15w		5- 8-43	5014	5505-5514	Viola lime, Ord	F 2969	28.7	Anticline	May cause drlg of other known, untested anticlines in area.
Barton	Barrett	Vernon O. & G. Co.'s Barrett 1, se ne se 36-16s-14w		5-26-43	3465	3434-3465	Arbuckle lime, Ord	P 14	40		Small well; limited reserves indicated.
Edwards	Belpre	Cities Service's Wilson B-1, se nw se 4-25s-16w		5-18-43	3971	3957-3971	Lansing lime, Penn	F 38; 1/2".			Unimportant.
Pratt		Stanolind's Frisbie 1, c se sw 5-26s-13w		5-10-43	4455	3947-3955	Lansing lime, Penn	F 554	32.7		Above average Kansas strike; should yield 6500 bbls. per acre; area probably small but pool among series of prod areas on this nosing of Cent. Kansas Uplift.
Russell	Williamson	Hartman & Blair's Boxberger 1, sw sw se 10-14s-14w		5-18-43	3271	3267-3271	Gorham sand, Penn	P 108			Small area, fairly productive; no extensive dev expected.
Stafford	Zenith, West.	Plains Explo. Co.'s Kelly 1, c e1/2 ne se 8-24s-11w		5-10-43	3803	3798-3803	Viola lime, Ord	P 648			Probably will connect with Zenith pool.
		KANSAS—New Oil Pay									
Ellsworth	Stoltenberg	I. W. Murfin's Loula 3, c s1/4 sw se 28-16s-10w		5- 2-43	3010	2990-3000	Lansing lime, Penn	F 216			More drlg needed to determine value.
		KENTUCKY—New Oil Fields									
Union		Trans-Tex Producing Co.'s Newman 1, 13-0-19		5-11-43	2751	1428-1445	L. Mansfield sand, Penn.	P 187			
		NORTH LOUISIANA—New Distillate and Gas Pay									
Claiborne	N. Lisbon	Union Prod. Co.'s King Unit A-1, ne 8-21n-4w	11- -42	4-22-43	11103	5188-5204 7790-7816	Bodcaw sand, Cotton Valley, Jur	F 19 mil; open	Dist.	Fltd; Prev. drlg	2 of several oil sands in Cot. Val. in this faulted area.
		NORTH LOUISIANA—Oil Field Extensions									
Bossier	Pine Island	C. W. Beene's Fenet 1, nw se nw 25-21n-14w	3- 5-43	4- -43	1010	994-996	Nacatoch sand, U. Cret	B 10		Dome; drlg	On flank of truncated dome; 3 1/2 mi e of prev prod, but this exten not important; will pump.
Tensas	N. Lake St. John	California-Carter's Rhodes 2, nw irreg. 28-9n-10e	3-29-43	5-15-43	6017	4435-4443	Wilcox sand, Eoc	F 187; 3/4"	44	Ant; Geop	2 mi nw exten; condemned to w by dry hole in nw nw irreg. 29-9n-10e.
		SOUTH LOUISIANA—New Oil Pays									
E. Baton Rouge	University	Wm. Helis' Nelson 14, 400' s 31 deg w fr ne cor sec 65, th 440' at ra in sec 36-7s-1w	2-10-43 2-10-43	4-28-43 4-28-43	9960	9590-9596	Sand, Olig	F 135; 3/16".	42.0	Dome; Flnk drlg	On flank of deep seated dome, this sand not thick but yielded good I.P. and with more drlg may yield 1/2 to 1 million bbls oil.
Evangeline	Pine Prairie	Roy Lee, Tr. (H. L. Hunt) Crowell-Spencer 1, 984' s & 1686' e of nw cor sec 35-3s-1w, west flank of dome	11-30-42	5- 7-43	10605	10158-10178 10194-10222 10266-10280	Wilcox sand, Eoc	F 166 1/8".	38.7	Slt dome;Flnk drlg.	Most important new sand discov. on any Gulf Coast dome this year; 3rd oil pay zone in fld; this Wilcox pay opens entire domal flank to deep prod; may add at least 2 1/2 to 4 million bbls new oil.
		MICHIGAN—New Oil Fields									
Clare	N. Hamilton	Sun Oil Co.'s Huber 1, s1/2 sw nw 6-19n-3w, 6 mi sw Headquarters fld.	3-23-43	5-15-43	4137	4084-4115	Dundee lime-dolomite; Dev	S & P 32	38	Ant; Geol	Importance undetermined; treated w 3000 gal acid; trace water.
Newaygo	Woodville	Ohio Oil Co.'s Vaughan 1, s1/2 ne ne 29-15n-11w, 15 mi sw Reed City pool.	3- 4-43	5-20-43	3534	2800-2850	Traverse lime; Dev	F 209; 1/4"	44.5	Ant; Core drlg	More drlg needed to evaluate; 21 bbls wtr; treated w 500 gal acid.
		NEW MEXICO—New Gas Field									
San Juan		Continental-Stanolind-Standard of Tex. Tocito 1, c nw sw 17-26n-18w	1-19-43	5- 5-43	6919	6648-6700	Lime; Basal Penn	F 2.6 mil.	Gas	Dome; Geop	Unimportant as gas reserve; gas subnormal for depth; but gas affords commercial volume helium, and well made available to U.S. Bur. Mines, which will determine future dev.
		OKLAHOMA—New Oil Pay									
Stephens	Velma Deep	Skelly's Selby D-2, c se se 26-1s-5w		5- 7-43	7670	7460-7470	Oil Creek sand, Ord	F 257; 1/8".			New pay enhances field's importance, prod. being prolific.
		OKLAHOMA—New Gas Fields									
Cimarron		Pure's Cox 1, se sw se 16-5n-8e		5- -43	6280	4670-4750	Sand, Penn	F 19 mil.	Gas	Dome; Seis	New field disassociated from Hugoton-Amarillo trend; will cause more testing in area.
Coal	Lula	Stanolind's Cushing Royalty 1, nw ne se 22-3n-9e	1- 8-43	5-30-43	6174	3524-3564 3578-3590	Cromwell sand, Penn.	F 18.2 mil	Gas	Ant; Seis	Not of great current importance, except that some oil encountered may cause more drlg.
		OKLAHOMA—Gas Field Extension									
Grady	Cement	Ohio Oil Co.'s Laflin 1, c sw sw 7-5n-8w	1-23-43	5- 1-43	6500	5042-5800	Lansing sand, Penn	F 40.2	Gas		Major extension on e side field.
		EAST TEXAS BORDER COUNTIES—Oil Field Extension									
Cass	Kildare	C. C. Gilger's E. L. Davis 1, Watson sur	4- -43	5-16-43	6120	6078-6084	Gloyd lime, L. Cret	F 166; 3/16".	42	Ant; Seis	1 mi n of prod; fld yielding better prod fr Gloyd as extended n.
		REST OF EAST TEXAS—New Oil Field									
Hunt	Campbell	Stanolind's H. C. Tilson 1, 330' out nwc 132 1/2-ac tr, 2900' ewl & 910' fr M/N/S lines Chas. C. Dale sur, 1 3/4 mi nw Campbell	3- 9-43	5-26-43	4451	4358-4366	Paluxy sand, L. Cret	P 177	30	Fltd Subsurf	Thin pay and much salt wtr w oil discounts importance this initial Paluxy strike for county.
		REST OF EAST TEXAS—New Gas Field									
Nacogdoches		The Texas Co.'s G. W. Strahan 1, 990' snl and 660' ewl of 110-ac lse, M. J. Ariola sur, 7 mi ne Nacogdoches	9- 5-42	5-12-43	9295	8610-8660	Travis Peak sandy-lime, L. Cret.	F 28 dist; 0.1 mil open tubg	51.7	Geop	Performance of discovery below par for depth; more drlg to tell if pipe line justified.
		REST OF EAST TEXAS—New Oil Pay									
Franklin	New Hope	Tide Water-Seaboard's A. J. Bacon 1, 440' out ne c 123-ac lse, blk 12, Jno. Maximillian sur, 4 mi n Scroggins.	1-14-43	5-10-43	8089	7295-7305	Rodessa sand, L. Cret.	F 348; 1/32".	41.5	Ant; Geop	Important discovery; good flow, small choke; reserve of possibly 300,000 bbls in this well fr Rodessa, besides 400,000 est for Travis Peak; is dual comp. by perforating in Rodessa. For orig. comp. see Oil Weekly, May 17, 1943, p. 10.
		NORTH TEXAS—New Oil Fields									
Archer	Little Wichita	Phillips Pet. Co.'s L. F. Wilson-Luke 1, nw nw ne sec 117, ATNCL sur.	4- 7-43	5-27-43	5623	4881-4891	Bend lime, Penn	F 377; 3/8".	42.3	Ant; Subsurf	Single well reserve of 120,000 to 160,000 bbls; broken oil saturation 4881-4920, although perforated 4881-4891.
Clay	Buffalo Springs	Continental-Omohundro's T. J. Stephens 1, 2043' snl and 1347' wel of G. W. Stipps sur A-249, 6 1/4 mi s by w of New York City pool.	2-22-43	5-14-43	6049	6011-6049	Mississippi lime, Miss	F 390; 3/32".	48.6	Ant; Geol-Geop	This natural flwg discovery affords reserve of 200,000 to 240,000 bbls; important if producing structure covers area indicated by subsurf.-geophysics; 5 tests scheduled, centering 2 mi w by n of disc.
Grayson		Burk Royalty Co.'s Wm. Freeman 1, 330' out nwc of 148-ac lse in se part W. S. Reeves sur A-1016.	4- -43	4-14-43	1384	1375-1384	Cisco sand, Penn	P 10	28	Ant; Geol	Not important; similar shallow pools in area yield small pumpers.
Jack		Standard Oil Co. of Texas & Hanlon & Buchanan, Inc.'s R. B. Peek-Shell 1, 567' wel and 1206' nsl of N-135-ac sec 3304, TE&L Co. sur.	4-23-43	5-31-43	4589	4579-4589	Bend lime, Penn.	F 229; 1/4"	40.5	Ant; Geop-Geol	Importance questionable; discov. entered Bend 60 ft low to recent Ellenburger failure 1 1/2 mi to se; single well reserve 60,000 to 80,000 bbls.
Jack	McDonald	Standard of Texas-Hanlon & Buchanan, Inc.'s J. W. Carter 1, 495' out ne c blk 5, Wm. McDonald sur., A-378	2-21-43	5-12-43	6040	3518-3538	Strawn sand; Penn.	F 123;3/8"	33.6	Ant; Geop	Nominal dev. likely unless more attractive pay found; single well reserve of 60,000 to 80,000 bbls.

(Continued on next page)

County	Field	COMPANY, WELL AND LOCATION	Date Spudded	Date Completed	Total Depth (Feet)	Completion Horizon (Feet)	[1]Name, Character and Age of Producing Formation	[2]Initial Production, Method, and Choke	Gravity of Oil	[3]Structure; [4]Method of Discovery	Preliminary Estimates of Reserves Found; Remarks
Montague	Denver	Sinclair Prairie's C. R. Henderson 2, 291′ from nw & 1539′ from M/S/SW lines of W. E. Martin sur A-1111, 176′ nw of 6835-ft junked well; 4½ mi se Mueller pool.	6- -42	4-28-43	7766	6070-6084	Bend lime; Penn.	P 81	39.8	Ant; Geop	Not important; well temp. abnd. 11-10-42 when failed flow; reinstated when pump installed; future dev. depends on well's ability to produce oil commercially w water; made 80 bbls wtr.
Wilbarger		Rogers Bros. Drlg. Co.'s J. W. McCrary 1, sw ne se H&TC 64, blk 14	3- -43	5-15-43	1499	1492-1499	Cisco sand; Penn.	P 100	36	Ant; Subsurf	Nearby failures make prospective area small, but such shallow wells generally profitable.
Young		Anderson-Prichard Oil Corp. & Col-Tex Refg. Co.'s J. L. Latimer 1, 815′ snl & 534′ wel of S-136½-ac blk 17, Young C. S. L. sur, ½ mi nw Murray.	4- 1-43	5-24-43	3654	3635-3645	Bend lime; Penn.	F 65 ;½″	41	Ant; Geop; Geol.	High ratio wtr threatens flooding of oil zone; single well reserve of 40,000 to 60,000 bbls.
		NORTH TEXAS—New Oil Pays									
Clay	Halsell	Bridwell Oil Co.'s Halsell 9-A, 467′ nsl & 3106′ ewl sec 8, A.P. Belcher sur. A-843, nw edge fld.		5- 3-43	5935	2604-2607	Canyon lime; Penn.	P 36	42	Ant; Geol	This nw outpost dry in field's 2 Strawn zones and opened Bend prod. with small pumper Feb. 1942, then pb to open shallowest pay, which is unimportant.
Jack	Hoefle	Hanlon & Buchanan, Inc.'s M. H. Leach 1, 495′ out of se c 236.9-ac. tr, John S. Porter sur A-466.	12-14-42	5-11-43	5953	2712-2729	Strawn sand; Penn.	P 65	40	Ant	Predominance of wtr (105 bbls day) with oil discounts importance of this Strawn pumper within Bend lime fld.
Jack		Rathke Oil Co.'s S. Jagoda 1, 660′ e and 660′ n of se c SA&MG sur, but in John Erwin sur, A-1608, ¾ mi nw gasser same zone.	10-29-42	5- 2-43	4802	4471-4529	Bend lime; Penn.	F 8 2″	38	Ant; Geol	At present unimportant, although possibly forerunner of commercial prod. elsewhere on structure.
		WEST CENTRAL TEXAS—New Oil Fields									
Coleman	Rock Crusher	Jas. C. Ellis-Murray-Estes Est's W. C. Ray 1,921′ ewl & 403′ nsl of 168-ac tr, Jas. P. McLean sur 687, 1 mi sw Rock Crusher.	4- -42	5-31-43	3162	3135-3150	Strawn sand; Penn.	P 18	38	Ant; Geol	Unimportant; small sw offset producer and dry holes drld while discovery being completed probably conclude development.
Jones		R. H. Roark's J. C. Sears-Humble 1, 467′ out nw c ne T&P Ry 37, blk 18.	2-27-43	5-15-43	2738	2730-2738	Lower Hope lime; Penn.	F 253; ¾″	42	Ant; Geol	Possibly small area for this pool between Noodle and S. Noodle pools, but establishes new pay for each of those areas; reserve for well 40,000 to 60,000 bbls.
Jones	Patterson	Fain-McGaha Unit Members' J. L. Patterson 1, nw nw ne T&P 20, blk 17, 2½ mi n by e Wimberly fld.	4- 5-43	5-21-43	2206	2195-2206	Flippen sand, Penn.	P 82	36	Ant; Geol	Deeper oil zones quite likely for area; single well reserve 30,000 to 45,000 bbls.
		WEST TEXAS—New Oil Fields									
Crockett		Sohio Prod. Co.-John I. & P. D. Moore's Shannon Est. 1, 660′ snl & 660′ ewl sec 12, blk Q, John Small sur, 2⅛ mi ne Live Oak pool.	12-29-42	5-31-43	2567	2377-2402	Lime; Permian	P 45	....	Ant; Geol	Considerable gas indicates better prod. elsewhere on block; single well reserve 40,000 bbls.
Howard	Vincent	W. S. Guthrie-Cosden Pet. Corp.'s P. Allen 1, c se se sec 57, blk 20, Lavaca Navigation Co. sur.	1-29-43	5-31-43	4096	4028-4091	Basal Clear Fork lime; Permian	P 158	27.3	Ant; Geol	Important discovery; first producer from Lower Permian for e part Permian Basin; 10 mi nw Westbrook fld, oldest oil area in basin; single well reserve of 80,000 to 100,000 bbls.
Winkler		Magnolia Pet. Co.'s J. B. Walton-State 20, c nw nw PSL sec 4, blk B-3.	10-26-42	5-18-43	10774 pb 10707	10673-10705	Ellenburger Dolomite, Ordovician	F 588; ¼″	41.7	Ant; Geop	One of most significant U. S. discoveries of year, promising similar deep oil prod. from Ellenburger in numerous other areas of W. Tex. On narrow or "peaked" Ellenburger structure with undetermined n-s length. Ellenburger affords 180-ft section of prolific gas-distillate prod at 10460-10640 ft. followed by 65-ft section or more of porous oil saturated dolomite; salt wtr from perforations 10752-10772 ft. Single well reserve of 800,000 to 1,000,000 bbls. crude.
		LOWER TEXAS GULF COAST—New Oil Fields									
Karnes	Porter	Transwestern Oil Co.'s Sellers 1, 660′ fr ne & nwl's 128-ac tr, Shaw & Harris subdiv, Victor Blanco Gr., A-3, 7 mi se Runge.	3- 8-43	5-1 -43	8015	4122-4123½	Pettus sand, Eocene	F 38; 14/64″	39	Fltd; Geop	Fields' importance yet to be determined, except it opens prod. on new trend in county. May add 100,000 bbls. to new reserves.
		LOWER TEXAS GULF COAST—New Gas Fields									
Jackson	Sterling	W. Stewart Boyle's M. D. Levy 1, 660′ fr sl & nwl 160-ac lse, n end Morris-Cummings sur 5, A-231, 1½ mi n Ganado fld.	2-19-43	4-29-43	4940	4910-4940	Marginulina sand, Olig.	F 46.7 mil & dist; ¼″	....	Fltd; Geop & Subsurf	Only gas so far, but may yield oil later; one of largest gas fields for county.
Refugio	Inari	P. R. Rutherford's Huff 1, 342′ fr sl & 330′ fr el 71-ac lse, Edward Perry sur, A-48, 1½ mi se Inari.	4-10-43	5-10-43	7135	5033-5038	Frio sand; Olig.	F 3 mil; 4/64″	....	Fold; Subsurf & Drlg	Fair size gas reserve indicated; no oil shown.
		LOWER TEXAS GULF COAST—New Gas-Distillate Fields									
Jim Wells	Wilson	Sam E. Wilson, Jr's Maria de la Garza 1-A, 675′ fr sl & 831′ fr el of e 40-ac of s 80 of 316-ac tr, share 7, El Paisano Ramon de la Garza Gr, A-10.	1- 4-43	4-15-43	8211	7920-7927	Vicksburg sand, Olig.	F 150 dist & 100 mil.	....	Fltd; Geop & Subsurf	Believed large structure, but apparently is primarily gas reserve.
San Patricio	SW Angelita	John T. O'Neil's Welder Heirs 1, 2700′ fr wl 2000-ac lse, Victoriano Tares & Pedro Villareal sur, A-32.	3- 6-43	5-10-43	7123	6840-6846	Frio sand, Olig.	F 52 dist & 42.35 mil 4/64″	.57	Fltd; Subsurf & Geop	May develop into sizable area, but only gas and distillate indicated so far. Possibly adds 20,000 to 30,000 bbls to reserve.
		SOUTHWEST TEXAS—New Oil Field									
Starr	Edgerton	Baldridge & King's Mary Edgerton 1, 330′ fr s&wl's share 66, porcion 80, J. A. de la Garza Falcon gr, 210-ac lse, 4 mi e Los Olmos fld.	4- 1-43	5- 9-43	4510	1222-1226	Jackson sand, Eoc.	P 20 open	....	Fltd; Subsurf & Geop	Very shallow field; 110 bbls wtr; may add 20,000 to 40,000 bbls to reserves; possibly will lead to opening of other new sands.
		WYOMING—New Oil Pay and Oil Field Extension									
Laramie	Horse Creek	General Pet. Co.'s (Whittaker) 77-6-P, sw se ne 6-16n-68w, ½ mi s of fld discovery well, 18 mi nw Cheyenne, Wyo.	2-14-43	5- 6-43	6107	5420-5460	Muddy sand, Cret.	P 40	34	Low Closure Fold; Seis & Grav Mtr	Nominal reserve, considering small prod. for depth; est. light oil reserve 250,000 bbls well has wtr in basal Sundance and in Lakota (in which fld discov. well comp.).
		WYOMING—Oil Field Extension									
Fremont	Pilot Butte	British-American Oil Prod. Co.'s Tribal 1-D, ewl sw nw 15-3n-1w	1-12-43	5-18-43	6349	6210-6240	Tensleep sand, Penn.	S 470	....	Elongated Ant; Drlg	Will add 400,000 bbls reserves to Pilot, bringing total to 1,500,000. Well 50 ft higher on Tensleep than discovery ¾ mi sw.

[1] Ages of producing formations abbreviated as follows: Mio, Miocene; Olig, Oligocene; Plio, Pliocene; Eoc, Eocene; U. Cret, Upper Cretaceous; L. Cret, Lower Cretaceous; Jur, Jurassic; Tri, Triassic; Perm, Permian; Penn, Pennsylvanian; U. Miss, Upper Mississippian; L. Miss, Lower Mississippian; Miss, Mississippian; Devo, Devonian; Sil, Silurian; Ord, Ordovician; Cam, Cambrian. [2] Barrels of oil per day (24 hr. rate), flowing, pumping, swabbing, or bailing; or millions of cubic feet of gas daily, open flow capacity; size of choke given in inches. [3] Type structure abbreviated as follows: Ant, Anticline; Dome; Fold, Folded; Fltd, Faulted; Mono, Monocline; Nose; Slt Dom, Salt Dome; Syn, Syncline; Ter, Terrace. [4] Method of discovery abbreviated as follows: Geol, Geology; Geop, Geophysics; Grav. met, Gravity Meter; Seis, Seismograph; Subsurf, Subsurface Geology.

West Texas Experimental Water Flood Successful

Small project in Estes field has not only retarded rapid production decline, but actually resulted in increased daily recovery of wells

By R. W. BYRAM, Staff Writer

EXPERIMENTAL water injection operations by Humble Oil & Refining Company on its Louis Richter lease in the Estes field, Ward County, West Texas, have been sufficiently successful to warrant expansion of the program. This conclusion has been reached as a result of tests made during the past year, and is of interest since it is the first water-flood project of the Permian Basin.

Although only two injection wells have been used, and each of these have put water into different zones, production of the lease has been increased. Furthermore, tests indicate improvement of bottom-hole pressures in the majority of surrounding wells.

The Richter lease is in H.&T.C. Section 27, Block 34, on the southeast flank of the field, and has 34 producing wells. Two wells, Nos. 3 and 28, have been used for water injection since the system was put into operation on September 1, 1942. There are 358 producing wells in the Estes field, the limits of which have not yet been defined.

Three productive horizons in the Yates sand are producing. These are found at 2500, 2900 and 3000 feet, respectively. However, no injection in the 3000-foot sand has been attempted, as one well, No. 37, is producing. Injection into the 2500-foot zone has been through well No. 28, while well No. 3 has supplied the water to the 2900-foot sand.

Both of the upper zones have tight sands and have strictly gas-driven production. Generally, the two zones, which are the oldest in the field, are produced separately, but both zones are open in 5 of the 32 producing wells.

Production in both zones declined rapidly. Development was completed in May, 1938, and by March, 1940, the wells were unable to produce the allowable assigned in them by the Texas Railroad Commission. This production decline is indicated on Figure 1.

Since allowables were reduced by the company as the capacity of the wells declined, and this decline curve represents a three-year period, it is reasonable to assume that it represents the natural decline of the wells in the horizons found at 2500 and 2900 feet. By November 1, 1941, production from some wells had dropped to two barrels per day per well, or less, and some were shut in because their operation was no longer profitable.

It was this condition which led to the experimental injection operation, authorized by July 13, 1942, by an order issued by the Texas Railroad Commission. This order permitted the operation to be continued for one year on an experimental basis, after which the company was to report its results.

Tests indicated that the use of fresh water in both zones would be satisfactory, and it was decided to use one well for each zone. Additional equipment for the camp water well was added and 6500 feet of four-inch water line was laid to the injection wells.

The system was put into operation on September 1, 1942, but the injection rate under gravity proved unsatisfactory. Only 70 barrels per day would flood into the 2500-foot sand through well No.

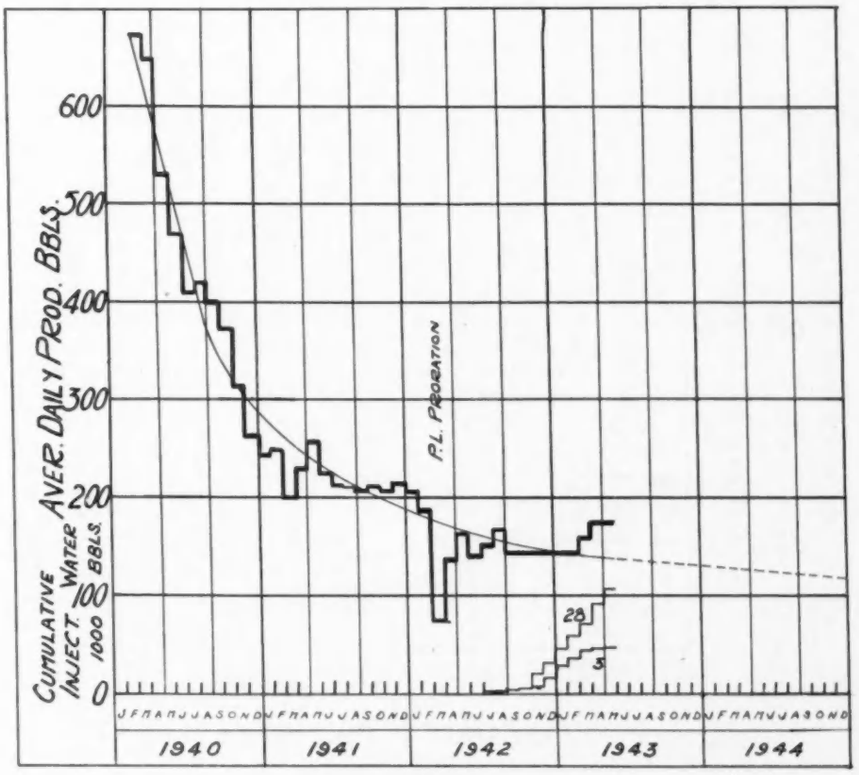


FIGURE 1
Production Data on Richter Lease

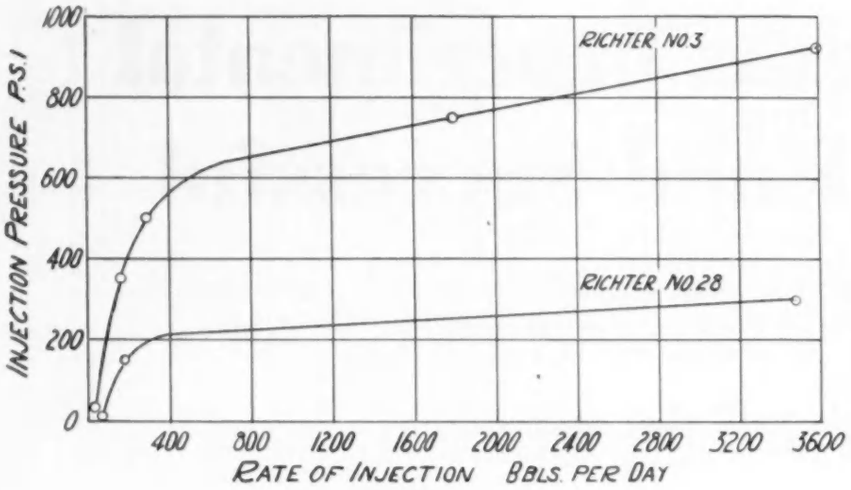


FIGURE 2
Water Injection Rates vs. Pressure for Richter No. 3 and No. 28 Wells

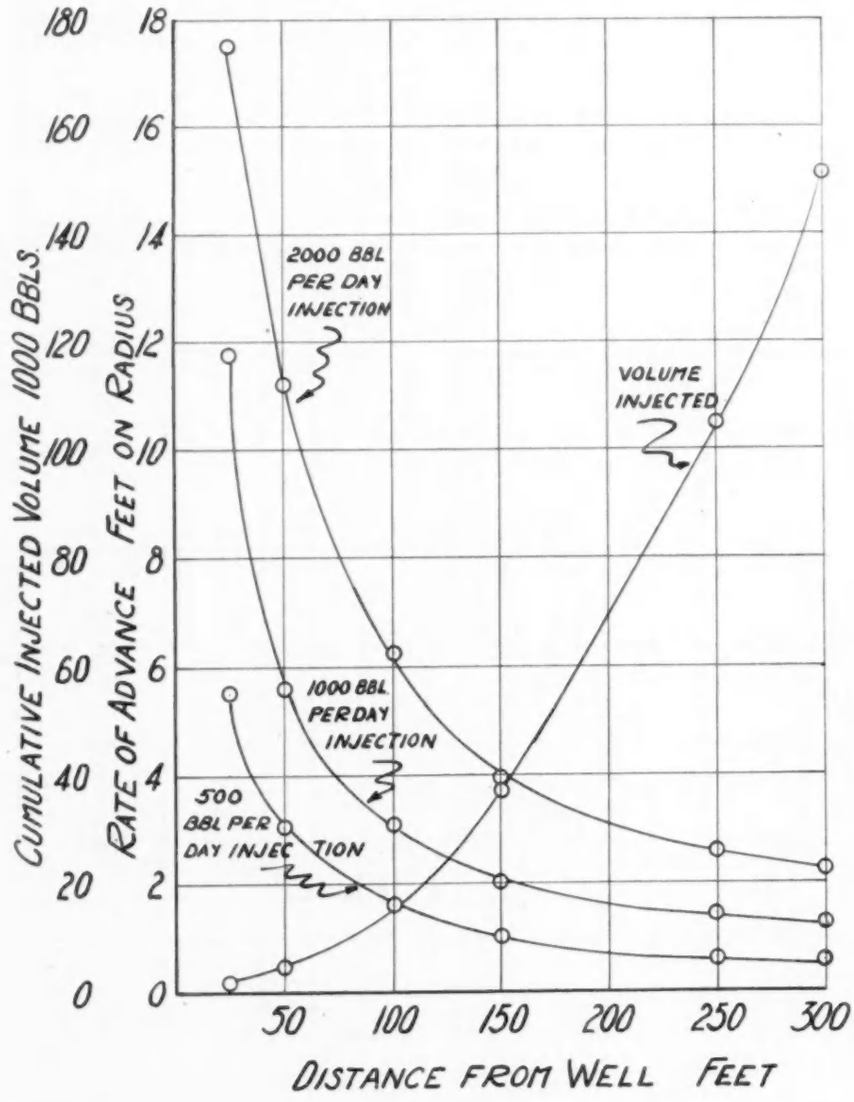


FIGURE 3
Theoretical Rate of Advance of Water Front at Various Rates of Injection on Richter Lease. (Assumed 15 feet of pay with 20 percent porosity.)

28, while the 2900-foot sand would take only 38 barrels through well No. 3. These injection rates were considered far too slow to accomplish any results within a reasonable time; therefore, water was pumped into the sand under pressure. (See Figure 2.)

The results obtained were encouraging. The increase in water intake by No. 3 was slight until the pressure reached 500 pounds. Slightly less than 300 barrels was injected under that pressure; however, by the time pressure had been increased to 900 pounds, water flowed into the well at the rate of 3600 barrels per day.

Much more effective results were obtained in the 2500-foot sand through well No. 28. With pressure at 200 pounds, the well would take about 330 barrels of water; but when the pressure was stepped up to 300 pounds, the water moved in at about 3475 barrels per day.

Although the wells reacted favorably to the pressure treatment and each showed a critical injection pressure above which it took more water rapidly with slight pressure increases, little permanent effect was apparent when gravity flows were reinstated. Well No. 3 would take 100 barrels daily by gravity at the end of the pressure tests, but soon dropped back to 70 barrels, resulting in an increase of only 32 barrels in its reception capacity.

Well No. 28 would take 128 barrels by gravity, but within three days dropped back to 70 barrels, the rate at which it would accept water prior to the pumping tests. This inidcated that if higher injection rates were to be obtained, the water must be introduced into the wells under pressure.

While the tests did not determine the optimum injection rates for these sands, sufficient data was obtained to arrive at a rate that would permit injection of the water as fast as possible, and yet avoid channelling. The theoretical rate of frontal advance at various rates of injection was calculated (see Figure 3), assuming that the sands were 15 feet thick and had a porosity of 20 percent. Based on these calculations an arbitrary figure of 500 barrels per day for each well was chosen as the injection rate.

To accomplish the result desired, a 2½ by 6-inch electrically driven power pump was installed on well No. 28, and a 5 by 10-inch engine-driven pump was installed on well No. 3. The latter pump, capable of handling in excess of 500 barrels of water daily, was installed on well No. 3 because this well is in an area where the wells are further apart and where higher rates of injection are permissable. Under continuous operation, injection pressure at well No. 3 is 1000 pounds and 500 pounds at well No. 28.

The project actually got under way about October 1, 1942, and some favorable results were apparent in recent months. Tests of wells surrounding the injection wells were made in January, 1943, and another series of tests was made on April 5, 1943, or 76 days later. Results of these surveys are indicated on Figure 4.

Significantly, 14 of the 18 wells tested showed material pressure increases. Pressure losses were indicated in 4 wells, but 2 of these were shut in for several days before the first test and for only 48 hours prior to the later test. The remaining 2 were east-edge wells with offset producers, some distance from the injection wells, indicating a normal pressure decline.

The average increase in pressure for the 76 days was 70 pounds, excluding the two wells which had variation in shut-in time. This is an average increase of almost one pound per day. These results are excellent when it is noted that these are stripper wells producing from a gas-driven reservoir.

Operating Expenses of Richter Water Flood as of April 1, 1943

Item	Cost
Company labor	$ 681.51
Contract labor	121.87
New material	357.60
Second class material	76.00
Transportation	30.60
Electric power	363.96
TOTAL	$1,631.54

Investment Cost

Job	Cost
Clean water well and install pump	$ 950.70
Set 500-barrel tank on 36-foot structure	2,117.84
Lay and bury 6500 feet of 4-inch water line	4,223.46
Install new 2½x6-in. pump and electric motor on Well No. 3	2,132.92
Install 5x10-in. pump on well No. 28	3,728.31
TOTAL	$13,253.23

The fact that production increased in March, as indicated by the production curve on Figure 3, is additional evidence to suppot the conclusion that the injection program is effective. The trend of production, normally downward, has not only been arrested, but shows a turn upward. From an average output of 140 barrels daily for the period August, 1942, through February, 1943, production of the lease in March this year climbed to 160 barrels daily, and then to 175 barrels daily in April and May.

While the evidence is not conclusive, it seems probable that if the program were extended to other leases in the field, productive capacity of the poorer wells would be raised and the ultimate recovery of the field increased materially. Such a program would require a regular pattern of injection wells if the most efficient results are to be obtained.

Expense of the experimental operation indicates that costs would be reasonable. A total of 123,122 barrels of water had been injected by April 1, 1943, at a total cost of $1,631.54, or 1.3 cents per barrel. This included the cost of electricity generated by the lease plant; without this charge, the cost could be reduced to 1 cent per barrel.

Cost of the original installations on the two injection wells was $13,253.23; this included investment costs up to April 1, 1943.

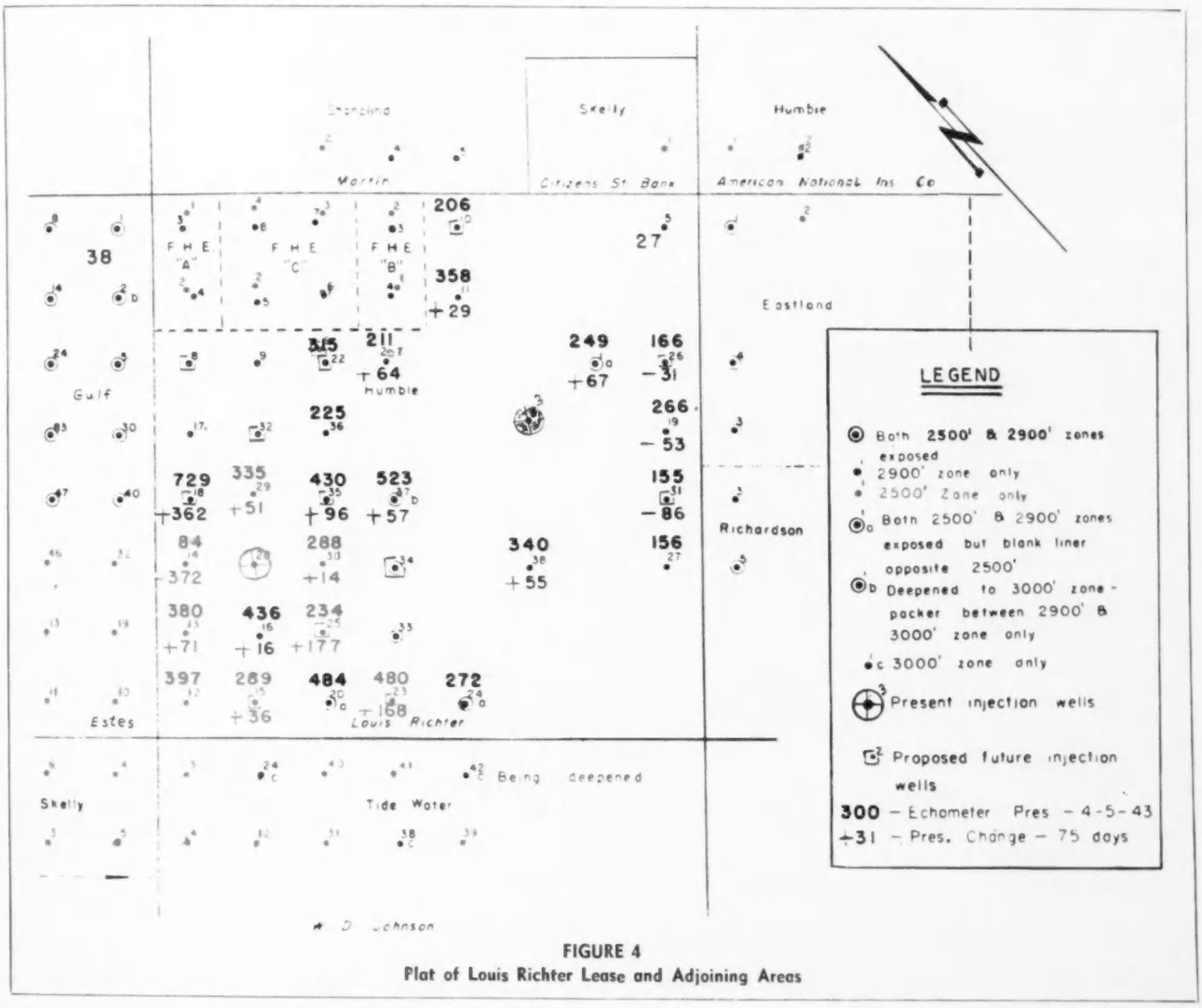


FIGURE 4
Plat of Louis Richter Lease and Adjoining Areas

Significance of Secondary Recovery In the United States

By PAUL D. TORREY
Chairman of Standing Subcommittee on Secondary Recovery Methods, American Petroleum Institute, Houston, Texas

PART 1 OF A SYMPOSIUM ON SECONDARY RECOVERY

This is the first of a four-part symposium on secondary-recovery methods. Secondary recovery is due to play a more important role in future United States' oil-field operations because it promises to contribute much of the supply that will be required to meet increased demand.

The other three chapters, which will be published in subsequent issues, will include: "Secondary Recovery in Terms of the Engineering Problem," by George H. Fancher, Professor of Petroleum Engineering, University of Texas, Austin.

"Factors Necessary for Consideration in Planning a Secondary-Recovery Development," by R. C. Earlougher, Geologic Standard Company, Tulsa, Oklahoma.

"Flowing Water-Flood Production," by T. F. Lawry, Forest Producing Corporation, Nowata, Oklahoma.

This symposium was presented at the 28th Annual Meeting of the American Association of Petroleum Geologists, Fort Worth, Texas, April 9, 1943.

IN THE spring of 1938, when the Topical Committee on Production Practice of the Division of Production, American Petroleum Institute recommended a study of secondary-recovery methods in the United States, no one could foresee that the subcommittee appointed to conduct this study would complete an important phase of its work at a time when the impact of war on the industry and life of the nation would require petroleum and its products in quantity never before considered necessary. The United States now needs oil abundantly, and particularly in areas where the strategy of military and naval operations make it essential that petroleum products be available and on time. Oil that may be discovered or made available in future years can have little bearing on the present demand.

To assist in supplying this greatly increased demand the proper application of secondary-recovery methods can contribute an important part. As an analogy the writer recalls an old story that is so illustrative of present conditions that a retelling seems justified. During the early period of exploration of the western hemisphere a ship, having suffered from violent storms in the South Atlantic and being driven far from its scheduled course, found itself in dire straits on account of lack of fresh water. The crew had practically given up hope of survival when to their great joy a vessel was observed approaching from the far western distance. Signals were immediately run up on the masts: "Give us water or we perish." The reply came back promptly: "Let down your buckets where you are, you are at the mouth of the Amazon." Here was fresh water in abundance coming from the most mighty of all rivers, but its existence, on account of the tremendous size of the current, had not been recognized. By the same token we can say: secondary oil reserves constitute oil in quantity comparable in magnitude to the flow of a great river, combining itself with the primary source of water in the sea, which scarcely have been recognized in the past notwithstanding the fact that they are just as proven as the primary reserve of the nation. Obviously, during a period of national emergency it is reasonable and logical for us to let down our buckets where we are and by intelligent study and more favorable price schedules make available this little recognized reserve of oil which in size is much greater than the total past production of many of our large oil producing states.

In November, 1942, the American Petroleum Institute published a book entitled "Secondary Recovery of Oil in the United States."[1] This book represents the results of more than four years of intensive study and investigation by the A.P.I. Standing Subcommittee on Secondary-Recovery Methods. In it can be found a wealth of detailed information relating to secondary-recovery operations in most of the oil-producing states. Reference is here made to this book as a source of much specific data of great practical value in the formulation of plans for any secondary-recovery project.

For the purpose of this paper, the A.P.I. definition of secondary recovery will be used. This is: "The oil, gas, or oil and gas recovered by any method (artificial flowing or pumping) that may be employed to produce them through the joint use of two or more well bores. Secondary recovery is generally recognized as being that recovery which may be obtained by the injection of liquids or gases into the reservoir for the purpose of augmenting reservoir energy; usually, but not necessarily, this is done after the primary-recovery phase has passed."

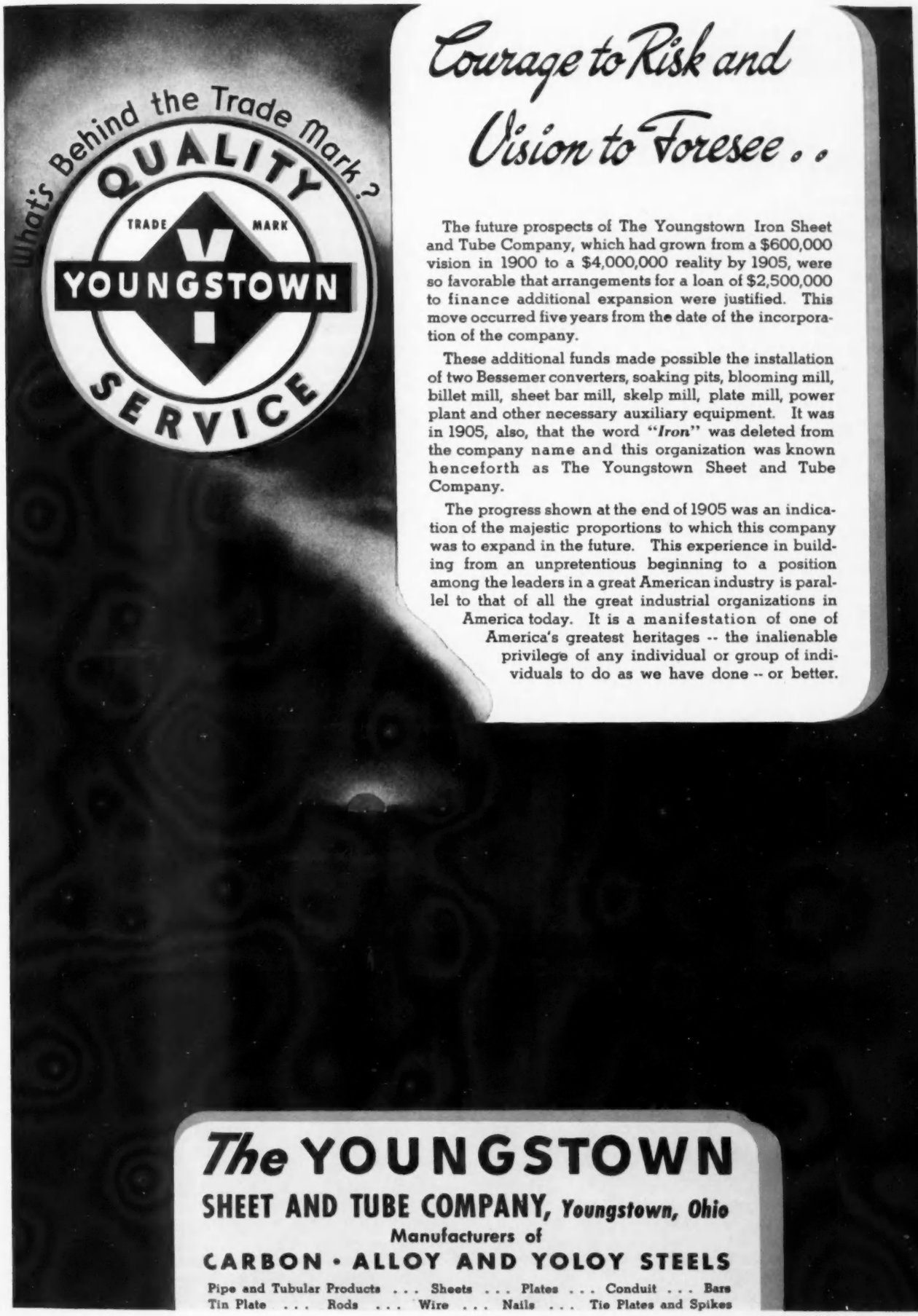
From this definition it will be appreciated that there are four fundamental requirements for the application of secondary recovery methods: (1) *an injection well* and, (2) *a producing well or wells* all drilled into (3) *a common porous oil-, gas-, or oil-and-gas-bearing formation* through which (4) *liquids or gases are forced under artificial pressure for the purpose of increasing oil recovery.*

Importance of Secondary Recovery

The oil which may be secured by secondary-recovery methods occurs chiefly in the older fields of the United States whose productive limits have been established by drilling years ago. In consequence, the development of secondary production involves no extensive exploration program and is not associated with those well known hazards connected with the drilling of wildcat wells. Careful preliminary investigation is, of course, a prerequisite to successful secondary-recovery work and some drilling may be required to establish the characteristics of the reservoir in fields where this information is lacking. However, the cost of this work is usually a small part of the total development cost and the wells which may be drilled for the purpose of gaining essential information can be utilized in the subsequent development program. Thus, with intelligent and competent technical guidance the risk involved in the development of secondary-recovery operations is low. A comparison has been made quite appropriately with the development of ore bodies where the extent and quality of the deposit can be determined by core drilling and where the cost of development and operation can be estimated with reasonable accuracy.

It should be emphasized that all oil fields are not adapted to secondary-recovery methods. Therefore, it is of equal importance to avoid mistakes as it is to encourage the more widespread

[1] All references on footnotes appear at the end of the fourth part.



Courage to Risk and Vision to Foresee . .

The future prospects of The Youngstown Iron Sheet and Tube Company, which had grown from a $600,000 vision in 1900 to a $4,000,000 reality by 1905, were so favorable that arrangements for a loan of $2,500,000 to finance additional expansion were justified. This move occurred five years from the date of the incorporation of the company.

These additional funds made possible the installation of two Bessemer converters, soaking pits, blooming mill, billet mill, sheet bar mill, skelp mill, plate mill, power plant and other necessary auxiliary equipment. It was in 1905, also, that the word "*Iron*" was deleted from the company name and this organization was known henceforth as The Youngstown Sheet and Tube Company.

The progress shown at the end of 1905 was an indication of the majestic proportions to which this company was to expand in the future. This experience in building from an unpretentious beginning to a position among the leaders in a great American industry is parallel to that of all the great industrial organizations in America today. It is a manifestation of one of America's greatest heritages -- the inalienable privilege of any individual or group of individuals to do as we have done -- or better.

The YOUNGSTOWN
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Pipe and Tubular Products . . . Sheets . . . Plates . . . Conduit . . . Bars
Tin Plate . . . Rods . . . Wire . . . Nails . . . Tie Plates and Spikes

application of water-flooding and gas repressuring. Unfortunately, in the past there have been ill-advised attempts to apply secondary-recovery methods. In most cases, there is every reason to believe these could have been avoided by competent geological and engineering studies.

Great attention is being given to the discovery of new oil reserves necessary to insure adequate supplies of petroleum products needed for the winning of the war. It is doubtful whether anyone can predict with any degree of precision just how much oil will be needed for this purpose. However, it is most notable that the estimated secondary reserves of the United States, if made available immediately, would be sufficient to supply the present consumption of the nation for a period of approximately three years. Obviously, it is infeasible and would be impractical to attempt to produce the secondary reserves at such a rapid rate, but the fact remains that if no more oil were discovered in the United States for the next two or three years our total oil reserve at the end that period, assuming a continuation of current production, would not be less than the present estimated primary reserve. By augmenting the primary reserve, the secondary reserve can contribute in a most substantial way to the assurance of adequate petroleum supplies.

We might speculate briefly on the effect that the elimination of production from the Pennsylvania Grade Crude Oil area, the greater part of which is derived from secondary recovery operations, would have on present essential civilian activity along the Atlantic seaboard. If this certain source of supply was not available, more steel would be required for pipe lines and for pumping machinery to move oil from areas of large primary production, and more labor would be required for construction work. While additional transportation facilities were being installed, a continued diminished supply of petroleum products could not help but have a demoralizing effect and certainly would be detrimental to the highest possible industrial activity.

Mention should be made of the fact that not only is oil needed abundantly but also particular grades of oil are in special demand for specific requirements. A company engaged in the exploration for new fields has no certain assurance that even if its work is rewarded by a discovery the oil so found will be of the quality or grade which will conform to its refinery technology or to the requirements of a purchaser. The quality of the crude that can be produced from any proposed secondary-recovery operation can be established readily and in advance of development so that a selection of crude may be made and refining facilities designed in accordance with a certain source of quality and of supply. It is indeed fortunate that secondary-recovery operations can be conducted with a great degree of flexibility and that increased production can be obtained in a relatively short time if so desired. Therefore, subject to the known reserve of a field, secondary-recovery operations can provide oil expeditiously and of predetermined quality, certainly important items both during periods of war and of peace.

The preceding discussion refers, of course, only to fields and areas where high recovery or exceptionally low development and operating costs make secondary recovery profitable. It is freely acknowledged that a substantial part of the estimated secondary reserve of the United States cannot be produced profitably under existing price schedules. A material increase in crude price would make available enormous quantities of secondary oil occurring in deep and thin-pay fields. Admittedly, this would be a stimulating incentive to explore for primary production, so the benefits of a general increase in crude price would be far reaching. However, it is evident that an increase in crude price is more desperately needed immediately for the preservation of marginal operations and for the stimulation of production in the older fields than it is for the maintenance of profitable operations in fields where flowing production can be anticipated for years to come.

The preservation of marginal or stripper-well properties and fields, particularly in areas where large primary production is available, by a moderate application of secondary-recovery methods is a conservation measure of great importance. It is generally agreed that intensive secondary-recovery operations are usually more effective and are certainly more economic than small-scale secondary-recovery operations. However, the situation exists in certain areas where greatly increased production may not be immediately desirable, but unless production is to a certain degree stimulated properties and fields will be abandoned on account of lack of profit with a possible irretrievable loss of a considerable quantity of oil. The moderate injection of gas or a small water-flooding project may very readily increase the production to an extent that abandonment will be prevented.

The saving of critical materials has been one of the most important contributions that the oil industry has made to the war effort. Only limited quantities are available and these must be allocated to areas where the most pressing demand exists. Consideration should be given to the fact that many secondary-recovery operations can be developed with a minimum of new equipment, and since the wells are usually shallow the lowest grades of steel may be employed with safety. It is frequently possible to utilize existing wells and production equipment and second-hand equipment can be used extensively. There is no doubt but that secondary recovery in certain areas can provide greatly increased production with a very limited amount of new drilling, thus accomplishing a partial achievement of the program for more oil with less steel. It seems utterly unreasonable to drill a large number of inside locations in old fields where increased production is desired when the same or possibly better results might be secured by secondary-recovery operations utilizing to a very large extent the wells already completed.

The recent expansion of secondary-recovery operations in the Mid-Continent and Southwestern states has been accompanied by some confusion in the interpretation of the conservation laws under which individual projects may be developed. Hardwicke,[2] in Chapter 3 of "Secondary Recovery of Oil in the United States" states: "It should be borne in mind, however, that power to regulate or even to compel secondary-recovery operations may exist under the general provisions of the usual conservation statute relating to oil and gas." Most of the Eastern States have specific secondary-recovery laws, and elsewhere almost invariably state regulatory bodies have favored secondary-recovery operations. However, in some states it would appear that actually it might be illegal to introduce water into an oil-bearing formation, and in others the power of the regulatory body to enforce unitization, a very important item in many operations, appears to be limited.

Constructive measures to remedy this situation and to clarify legislation relating to secondary recovery were taken by the Interstate Oil Compact Commission at its meeting in Lexington, Kentucky, June 20-22, 1942. It was recognized by the legal advisory committee of the commission that existing statutes on the subject are quite vague, and it was recommended that each oil-producing state pass an adequate law specifically authorizing agreements with respect to such operations and provide that they will not violate anti-trust laws. A model secondary-recovery law was proposed.

Arkansas has been the first state to follow this recommendation and legislation is now pending which will permit

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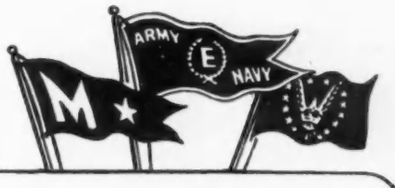

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Type	TU24G-JD2TP	TU44G-HD4TP	TU104G-HD10TP	TU164G-HD16TP	TU234GS-JD23TP
A. P. I. Walking Beam Rating, pounds	3200	4100	6725	8900	11,000
*Former Walking Beam Rating, pounds	3820	5000	8050	10,900	13,280
A. P. I. Peak Torque Capacity at 20 spm, in-lbs.	6360	11,050	24,300	40,200	57,200
Overall Gear Ratio	26	29.5	29.2	29.2	29.8
Maximum Polished Rod Stroke, inches	16	20	28	34	42

CRANK COUNTERWEIGHTED TYPES										
Type	TU304-HD30TB	TU304-H46TB	TU304-HD46TB	TU464-H46TB	TU464-HD46TB	TU804-H60T	TU804-HD60T	TU804-H80T	TU804-HD80T	TU1604-HD160T
A. P. I. Walking Beam Rating, pounds	12,750	12,750	12,750	15,000	15,000	22,000	22,000	22,000	22,000	32,400
*Former Walking Beam Rating, pounds	15,300	15,300	15,300	18,000	18,000	26,500	26,500	26,500	26,500	39,400
A. P. I. Peak Torque Capacity at 20 spm, in-lbs.	76,500	124,000	113,000	124,000	113,000	170,000	139,000	238,000	200,000	432,500
Overall Gear Ratio	29.6	10.2	30.8	10.2	30.8	9.7	26.8	9.4	28.3	30.3
Maximum Polished Rod Stroke, inches	48	48	48	54	54	64	64	72	72	120

*Former A. P. I. Beam Rating (Aug. 1935)

the oil and gas commission to make an extensive study of the secondary-recovery possibilities of its older oil fields and to regulate properly all future secondary developments. The progressive action of the Interstate Oil Compact Commission and the state of Arkansas is commended highly. Other states could profitably follow Arkansas in passing legislation which would remove once and for all any uncertainty regarding the legality of secondary-recovery operations, and unitization agreements both for primary and secondary production.

The importance of secondary-recovery operations in perpetuating the oil industry in the Eastern States requires little comment. It is a well known fact. In other oil-producing states it would appear that secondary-recovery methods now represent the only possible means for interrupting the natural decline of primary production. How important this can be to a state can be appreciated readily when consideration is given to the support from severance taxes given to the educational and eleemosynary institutions. If revenue cannot be maintained from oil production other forms of taxation will have to be resorted to or the service of the various state institutions will by necessity be diminished. For this reason, in addition to the important aspects of conservation, secondary-recovery operations are deserving of special consideration by every oil-producing state. Even though possibly not so apparent at the present, the time will come eventually in every state where stimulation of production will be desirable.

Some Geologic Factors Influencing Secondary-Recovery Operations

The accumulation of oil in many of the fields in which secondary-recovery methods have been employed in the past has been controlled by lenticularity of the reservoir rock, i.e., they are stratigraphic-trap type fields. As such, many of them have not received the benefits of active, natural water encroachment and the oil has been produced by internal gas drive generally regarded as being the least efficient natural reservoir performance. In addition, it should be kept in mind that most of the existing secondary-recovery operations are located in the older fields which were produced initially at times when little attention was given to the conservation of reservoir energy. In consequence the solution gas was extravagantly wasted and when this propulsive agent was dissipated subsequent production could come only from gravitational drainage. The oil left in the reservoirs by these early, inefficient primary-recovery operations is the oil which is now available for the application of secondary methods. There can be little doubt that if fields of this character had been produced with regard to presently known principles of reservoir performance, the opportunities for secondary-recovery methods in the United States would be less than they actually are. Therefore, in certain respects we may regard secondary recovery as a correction of past mistakes in production practice, and appreciating that mistakes have been made, greater care can be exercised in the development and operation of more recently discovered fields. This is being accomplished in a very satisfactory manner in certain of the lenticular-sand fields of North Texas where the solution gas is recycled back into the reservoir, thereby preserving the original bottom-hole pressure. The results obtained from some operations of this type have been phenomenal. These projects can hardly be classified in the category of secondary-recovery operations, but the same general methods are used.

Some clue as to the adaptability of a field to secondary-recovery methods can be gained from an analysis of past reservoir performance. If natural water encroachment has been active and uniform the residual oil content, after the primary period of production has passed, probably will be too low to permit profitable secondary-recovery operations. The effectiveness of natural water encroachment should not be taken for granted unless production records are available to confirm a high degree of recovery efficiency. Frequent instances are known where water has migrated rapidly through relatively thin zones of high permeability and has drowned out the wells by the formation of water cones, leaving much oil unrecovered in the less permeable strata. A field in which such conditions exist can be regarded as a favorable prospect for the application of secondary-recovery methods, provided the offending strata of high permeability can be plugged off successfully.

The primary-recovery efficiency of fields in which oil has been produced by controlled gas-cap expansion is not so well known although in some instances it is believed to be very good. In the early days of the oil industry it was common practice to blow off the gas-cap in the hope that wells located at high structural positions would eventually produce some oil. Unquestionably, this was a most wasteful procedure since it eliminated the propulsive effect of an expanding gas-cap and at the same time would permit the oil to migrate up dip and wet a dry sand, forming a film thereon which is not susceptible to any known recovery process. However, even if both of these unfavorable developments took place, it is possible that the primary-recovery efficiency of an oil field having an original gas-cap, which was dissipated, may be better than one in which recovery has been obtained strictly by internal gas drive. The reason for this conclusion is that in the gas-cap field the crude was probably completely saturated with gas under the existing conditions of pressure and temperature in the reservoir, whereas in the internal-gas-drive type of field the crude many times was undersaturated and thus would have a limited amount of solution gas available to expand and drive the oil to the well bore.

From the foregoing it should be apparent that efficient primary reservoir performance may be regarded as an unfavorable indication for successful secondary operations, and the most promising opportunities for secondary recovery will be found in fields possessing a high residual oil content. The latter condition will be found more generally in fields where the primary oil recovery has been obtained by internal gas drive or where natural water encroachment has been erratic or lacking in uniformity.

Uniformity in the physical characteristics of the reservoir is a most desirable feature for successful secondary-recovery operations, but since this condition rarely exists the engineer must contrive methods to control bypassing of the injection medium through zones of high permeability. In the past, bypassing has been one of the most serious problems connected with secondary-recovery work.

As previously mentioned, many secondary-recovery operations are located in fields where the oil accumulation occurs in stratigraphic-trap type of reservoirs. In such fields the dip of the strata may be so slight as to have no noticeable effect on secondary-recovery operations. Under such conditions the location of injection and producing wells may be made to conform best to property lines and to known sand conditions. However, in fields where oil and gas accumulation has been controlled by well defined anticlinal structure or where an appreciable monoclinal dip exists it is believed to be better practice to introduce gas into the reservoir at up-dip locations and to introduce water down-dip and if possible near the existing water-oil contact. The injection of gas down-dip or water up-dip is contrary to the natural association of reservoir fluids. The gas by difference in gravity will tend to migrate up-dip, usually following the zone of highest permeability, and the water will tend to follow the line of least resistance and run down hill. It

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is believed that the ideal arrangement is to inject gas on the top of the structure in such quantity that an expanding gas cap will be formed and then to introduce water down-dip in an amount sufficient to replace the oil as it is removed from the reservoir. The combination of pressure effects from the gas and from the water will prevent the migration of the oil into barren strata and will tend to concentrate it at such structural position where it may be recovered with the maximum efficiency.

Diverse ownership of fields many times prevents the most efficient secondary development. If operators would only give attention to the inevitable increase of permeability to gas in gas recycling operations with a resultant steady increase in gas-oil ratios, it should not be so difficult to effect unitization agreements. The complaint is made frequently that a widespread sale of royalty interests makes unitization too difficult. This is a flimsy excuse and has no justification when literally millions of barrels of oil may be at stake. If a small minority of operators or royalty owners persist in obstructing a program designed to benefit a field as a whole, it is believed that state regulatory authority should have the power to compel unitization or at least to eliminate possible liability that might arise out of claims for damage. The writer is familiar with several fields where a few stubborn and uninformed operators have prevented effective secondary-recovery operations, resulting in the permanent loss of substantial quantities of oil. This condition should not be tolerated in the future.

One of the chief problems involving the unitization of properties in a field for secondary-recovery work is difference in acreage quality. Reservoir conditions may be good, mediocre, and poor, all in the same field, and the operators owning the best properties may be loath to unitize them on a strict acreage basis. To eliminate situations of this kind, our conception of the ownership of oil must be revised. The secondary oil underlying a property should belong to its owner rather than to the operator that might possess it when it is brought to the surface. Therefore, unitization agreements for secondary-recovery operations, to be fair and equitable to all concerned, should take into consideration the ownership of barrels of oil in the ground rather than to the control of surface areas.

Prospective Areas in the United States for Future Secondary Recovery

Any consideration of a possible expansion of secondary-recovery activity in the United States among other things must be based on the question of the price paid for crude and on the type of reservoir performance which has prevailed generally in any particular area. For instance, deeper Pennsylvanian-sand fields of Oklahoma probably have a large potential secondary reserve but the present price paid for crude does not justify intensive secondary development. Also, as an example it may be pointed out that practically all of the Miocene-sand fields and many of the Oligocene-sand fields of the Texas and Louisiana Gulf Coast area do not appear to be adapted to secondary-recovery operations on account of efficient primary recovery.

In Pennsylvania there has been little secondary-recovery activity is what is generally known as the Lower Middle District comprising fields located in parts of Venango, Clarion, Armstrong and Butler counties. This is due to the fact that most of the fields are already abandoned or now exist with only a few producing wells, and because of greater depth, in comparison with the Venango District to the north. On this account it is not economic to re-drill these fields, similar to the technique in other parts of the state, under existing price schedules. It has been estimated by well informed authorities that a secondary-recovery reserve in excess of 800 million barrels of physically recoverable oil exists in the Lower Middle District. It is probable that not more than 30 percent of this reserve is economically recoverable at the present time.

In Southwestern Pennsylvania secondary-recovery operations have been conducted on a limited scale, but with a good measure of success. This area is believed to be most promising for future intensive secondary-recovery work.

There are very few intensive secondary-recovery operations in West Virginia. This is due to a widespread past abandonment of wells resulting in a present wide spacing pattern and to a lack of gas for repressuring purposes. Although generally the oil-bearing formations of West Virginia are not as favorable for secondary-recovery work as in Pennsylvania, all evidence available indicates that intensive development, which would be possible with a better price for crude, should result in a substantial increase in recovery.

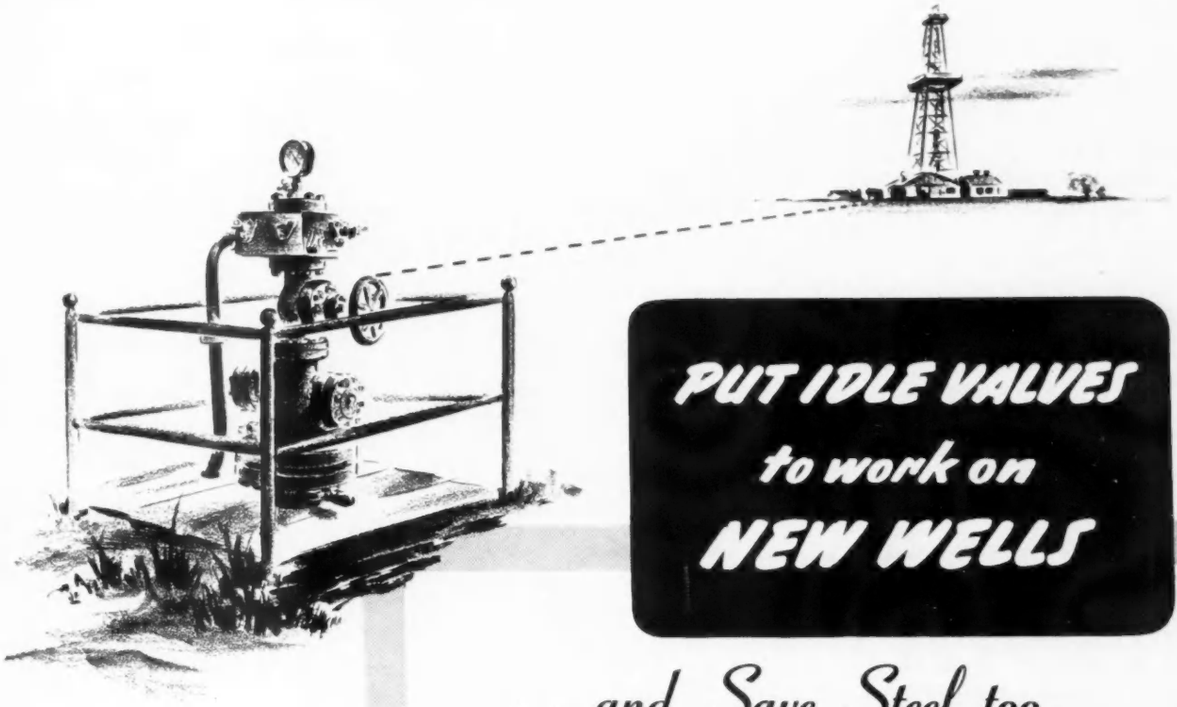
The indicated success of water-flooding operations in the Chatham field, Medina County, Ohio, producing from the Berea sand, encourages the belief that this method might be applied with satisfactory results in other Berea fields.

Gas repressuring has been employed for quite a few years in the Weir-sand fields of Eastern Kentucky with a fair measure of success. Recent analysis of cores from this horizon indicate that it should be better adapted to water-flooding with considerably increased recovery efficiency. Air and gas repressuring in the Corniferous-lime fields of Central Kentucky has demonstrated profitable recovery possibilities. Most of the projects now in operation have been conducted on a very limited scale on account of a lack of gas. The possibilities for greatly increased recovery by more intensive development are most attractive. Here again, low crude price is the principal deterring factor.

The oil fields of Illinois represent some of the most promising possibilities for secondary-recovery operations of any state in the country. Many of the fields have been produced in an unrestricted manner and in all probability primary reservoir performance has been poor. Several more or less accidental water-floods are known in Illinois and these have increased primary recovery in a range from 1000 to 12,000 barrels of oil per acre.

There are unquestionably many opportunities for secondary-recovery in the deeper Pennsylvanian-sand fields of Kansas and Oklahoma. Excepting the Oklahoma City field, the Ordovician producing formations are not regarded as promising for secondary-recovery operations. It is believed, in particular, that some of the fields of Southern Oklahoma are adapted to gas repressuring and possibly to water-flooding.

In the Southwestern States the fields of Northwestern Louisiana and North-Central Texas appear to be best adapted to secondary-recovery operation. However, consideration should be given to secondary-recovery possibilities of the large areas producing from the Permian in West Texas. If estimations of primary recovery in many of the West Texas fields are correct, and known bottom-hole pressure decline-production relations indicate that they will be, the recovery of oil in comparison to the oil content of the reservoirs, apparently, will be none too good. There is no doubt but that there are many recovery problems associated with the production of oil in West Texas fields, such as lenticular pay zones and low permeability of the producing horizons, which require acid treatment or explosives in the completion of wells. However, under somewhat similar conditions, secondary-recovery methods have been applied most advantageously in other areas and it is believed confidently that certain fields of West Texas should react favorably to gas injection or to artificial water-flooding. There should be no delay in giving careful consideration to the effi-



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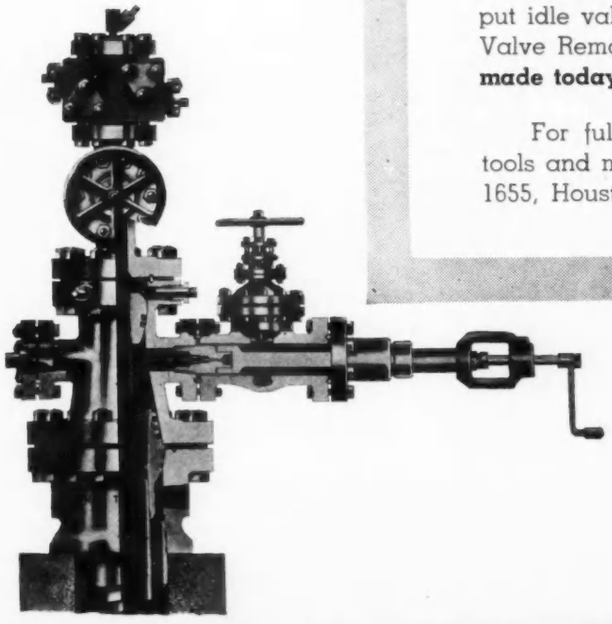

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ciency of reservoir performance in these fields. Obviously, it is far more practical and economic to maintain pressure in the reservoirs than it is to restore it.

Generally, the efficiency of primary recovery in the Cretaceous fields of the Rocky Mountain states has been good, and on this account the results obtained from various secondary-recovery projects have not been as outstanding as in other states. Information regarding reservoir performance in fields producing from Pennsylvanian and Mississippian formations is not complete but the fact that several pressure maintenance projects, by gas injection, are now in operation would indicate that the operators may have some doubts as to unaided primary recovery efficiency.

In commenting on secondary-recovery possibilities in California recognition is given to the many problems that are peculiar to that state. However, after checking the most recent statistics available it is very apparent that notwithstanding the enormous total production of certain of the older large San Joaquin Valley fields, the recovery per acre-foot has been surprisingly low. The writer is not sufficiently familiar with these fields to hazard an opinion regarding the reason for this condition, but he is willing to state that if the same conditions prevailed in Texas or Louisiana very poor primary-recovery efficiency would be indicated. Also, the immediate reaction would be that fields which have produced no more than 200 to 300 barrels per acre-foot over a period of from 30 to 40 years should have a high residual oil content and therefore be adapted to secondary-recovery methods. It is appreciated that diverse ownership, lenticular sands, complicated structures, low crude price, and other geologic, engineering, and economic problems exist in California which, perhaps, are the reasons so little attention has been given to the possibilities of secondary-recovery. However, it may be pointed out that similar problems have been solved successfully in many other areas. Undoubtedly, increased production of oil in California is of high strategic importance, and as a means for obtaining this desired increase secondary recovery methods are certainly deserving of careful and thorough consideration.

The magnitude of secondary-recovery operations in the United States has been determined by the A.P.I. Standing Subcommittee on Secondary-Recovery Method. It has been ascertained during 1942 that secondary-recovery operations affected a minimum of 306,282 acres of oil-productive territory on which there were some 50,636 producing wells and 34,956 injection wells. These comprise some 1236 different projects located in 254 separate fields with an estimated plant investment of $281,496,000. The value of secondary-recovery-oil produced in the United States during 1942 is estimated to be $84,000,000.

The estimated secondary oil reserves of the United States are shown in Table 1.

TABLE 1
Estimated Secondary Oil Reserves of the United States*

STATE	(Millions of Barrels) Proved Reserves	Semi-proved and Marginal Reserves	Total Estimated Reserves
New York	107	123	230
Pennsylvania	425	360	785
West Virginia	147	170	317
Ohio	20	40	60
Kentucky	39	104	143
Illinois	18	208	226
Kansas	228	.....	228
Oklahoma	249	344	593
Arkansas	0	444	444
Louisiana	36	107	143
Texas	59	911	970
New Mexico	0	10	10
Rocky Mtn. States	27	.....	27
	1,355	2,821	4,176

* Revised from Chapter 1, American Petroleum Institute's "Secondary Recovery of Oil in the United States," by various members of the Standing Subcommittee on Secondary-Recovery Methods.
Note: Estimation of semiproved and marginal reserves in Arkansas has not been accepted by the subcommittee and is subject to correction.

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How to Inspect Drums Used With Wire Rope

Third of a series of articles on saving wire rope. First article, published June 7, was "How to Inspect Wire Rope." Second article, published June 14, was "How to Inspect Sheaves Used With Wire Rope."

By A. J. MORGAN, Chief Engineer,
Wire Rope and Strand Division, John A. Roebling's Sons Company

SINCE a large majority of drums used in industrial service are cylindrical, only that type will be considered here. Recommendations for drum diameters are the same as those for sheave diameters (see page 42, THE OIL WEEKLY, June 14, 1943), and are given in Table 1. With grooved drums the recommendations for groove diameters are the same as those given in Table 2 for sheave groove diameters.

Three checks are to be made on drums:

1. *Contour.* With plain-faced drums corrugations on the face will cause the same damage to the rope as discussed under sheave materials. Drums which have become corrugated should be remachined. Where the drum shell is too thin it may be lagged with steel plate.

2. *Symmetry.* If the drum face is low at one spot the rope will tend to pile up at this point. The rope coming onto this part of the drum first will wind in too open a wrap, whereas that on the other side of the low spot will wind too tightly, thus causing undue rubbing of adjacent wraps. Figure 1 shows this condition in somewhat exaggerated form.

3. *Winding.* Where grooved drums properly designed for the rope to be used upon them are employed, no winding difficulties are usually encountered when the fleet angles are satisfactory. Where plain-faced drums are used, however, care must be taken to see that the wire rope winds onto the drum evenly in a continuous loosely closed helix so that one wrap just touches the adjacent wraps. Too-tight winding of rope will cause one wrap to scrub unduly against adjacent wraps, and thereby cause excessive abuse. With multiple-layer drums too-open winding will allow the upper layers to pull down between wraps of the bottom layers, thus causing scrubbing, pinching, and other excessive abuse of the rope.

4. *Fleet Angle.* This is the angle between the center line of the lead sheave and the rope. See Figure 2. The lead sheave is the first sheave over which the rope passes as it winds off the drum.

The fleet angle must be kept within certain limits. If it exceeds 1.5 degrees the rope may wind unevenly, creating scrubbing in spots, and winding loosely in others. Too large a fleet angle will cause the rope to scrape against the flanges of the lead sheave, adding another source of abrasive wear.

If the fleet angle is less than 0.5 degrees, the rope may tend to pile up at the flanges and to wind unevenly after more than one layer of rope is wound on the drum.

In some installations rollers or other

TABLE 1

Recommended and Minimum Diameters for Drums

ROPE	Recommended Diameter No. Times Rope Diameter	Minimum Diameter No. Times Rope Diameter
6 x 7	72	42
6 x 19	45	30
6 x 30	45	30
6 x 37	27	18
8 x 19	31	21
18 x 7	51	34

TABLE 2

Tolerance by Which Drum Groove Diameter Should Exceed Rope Diameter

Nominal Rope Diameter, Inches	Recommended Tolerance, Inches
¼–⅝	⅛
⅝–¾	¼
⅞–1⅛	⅜
1⅛–1½	½
1⅝–2¼	⅝
2½ and larger	⅛

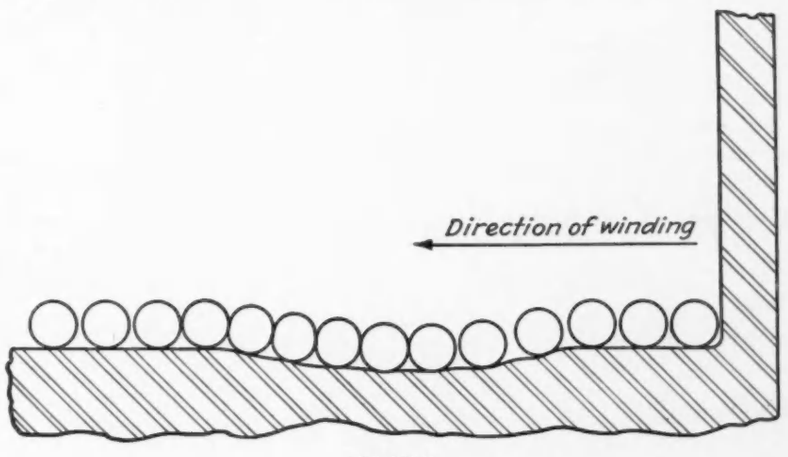

FIGURE 1

When the surface of a smooth drum becomes uneven, the rope layers are wound too loosely in some places while they rub heavily in others, causing unnecessary wear.

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devices are used to guide the rope or to protect it from scraping against some part of the machinery with which it is not supposed to come into contact. Such rollers should never be less than eight times the diameter of the rope and must be kept in condition to rotate freely. Any rollers with corrugated or imperfect surfaces should be immediately replaced.

Reeving

In reeving wire rope it is important that the rope be subjected to a minimum number of reverse bends, since fatigue will occur much more rapidly as the number of such bends increases. Reeving should in all instances be as straight and simple as possible. Frequently a new system of reeving can be worked out that will yield a considerably longer period of rope service. (See Figure 3.)

In studying the reeving of rope, note carefully whether the rope is allowed to scrub improperly against any part of the machinery or other structure during the course of normal operation.

Operating Conditions

Proper operation of the rope-using equipment has a very distinct bearing upon the length of life of a wire rope, although it is not subject to precise measurement. For example, sudden starts produce incalculable strains that can do great damage to a rope. Jerky operation will have the same effect.

If the rope is slack, quick starts introduce serious vibration and impact stresses which result in excessive fatigue and frequently produce failure of the rope.

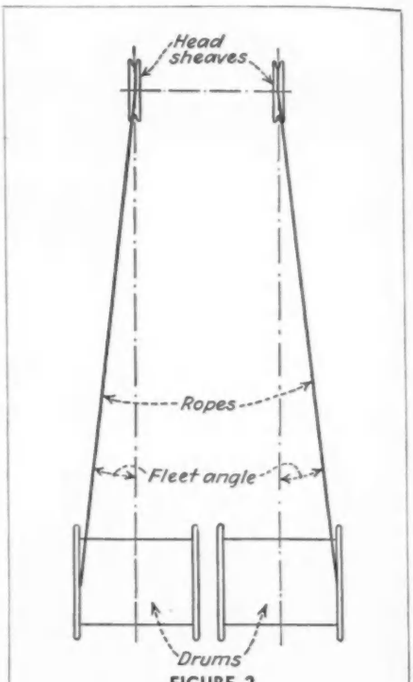


FIGURE 2
Fleet angle should be not more than 1.5 degrees, not less than 0.5 degrees.

With cranes and winch operation, a common source of rope abuse occurs when the load is pulled sidewise, resulting in scrubbing and grinding of the rope against the sheave flanges and often against structural parts of the equipment.

A competent operator can add many working hours to the life of wire rope, just as a competent driver can add many miles to the life of a car.

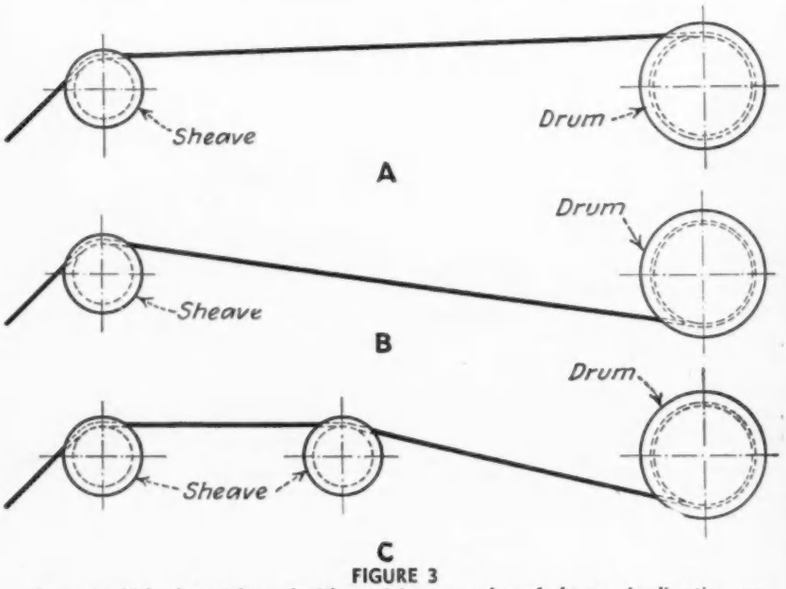


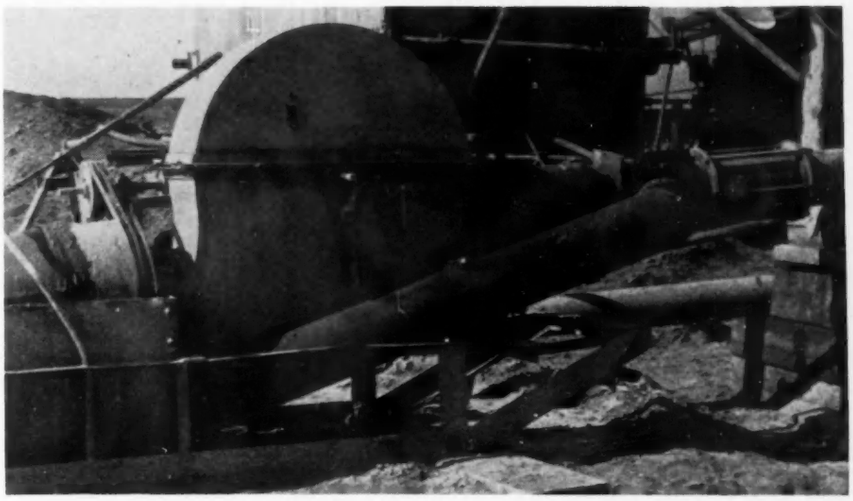
FIGURE 3
Rope should lead straight and with a minimum number of changes in direction, as A and B show. Avoid unnecessary changes in direction, C, whenever possible.

Mud Line Bypass Saves Drilling Time in Porous Formations

IN DRILLING many West Texas wells circulation is lost in porous zones encountered in the upper part of the hole. The use of mechanical or chemical sealing additives in the mud stream usually restores circulation without difficulty and drilling is resumed. Continued circulation of the special mud for two or three days thoroughly seals the porous strata.

Since the use of shale screens tends to cut out and remove the plastering agents, the screen must be removed and the mud line refitted for the duration of the circulating period. When returns are completely restored, reconversion is necessary.

To eliminate the two or three hours of lost drilling time a simple, built-in bypassing system is used by one company. An inverted Y-branch is welded into the line just ahead of the screen, with the branch line reentering the mud line beyond that unit. Each branch of the Y is equipped with a slot in which a blind of ¼-inch plate fits closely. This blind permits instant change of stream, without shock to the line and without restricting circulation. A nut welded to the housing on the branch line accommodates a set screw while, through a hole in the housing, may be screwed tightly against the blind to permit regulation of flow over the screen to give gradual elimination of the plastering material if such course be desirable.



Bypass line fits closely to screen installation and is shofted integrally with the mud-cleaning unit. Increased pitch insures clearance of materials through temporary channel. The Y-branch and main both carry slots (left,below) for guidance of plate blind, set screw permitting regulation of bypass stream to give gradual screening out of plastering agents when desired. Cut to fit closely to the bottom of either mud line, the blind (right) quickly seals off any seepage around the edges with some of the materials being carried by the stream, yet is readily removed when change of mud delivery is required.

More Wildcats Drilled

[Continued from page 12]

and any other available information shedding light on potentialities.

Even by the most optimistic estimates of the possibilities of the May discoveries, it is indicated that there was a definite failure to put on the maps new producing areas which ultimately would produce as much oil as was taken from the ground during the month while those discoveries were being made. Currently, the nation is taking petroleum from the ground at the rate of approximately 127 million barrels per month. Yet by the maximum estimates above, probably no more than 100 million barrels of ultimate production was found during May, while the more conservative side of the range of estimates would indicate only about one third as much oil was being found as was being used.

These results for May were disappointing, therefore, even from the long-range standpoint, with the month's findings failing to equal the month's draft on established reserves. The results were much more disappoiting from the current, wartime-necessity standpoint, for as seen by analysts of the government and the industry, there is at present an urgent need for faster-than-normal opening of new productive areas, in order to maintain thereby the current producing ability of the nation, assuring capacity to meet heavy military and essential civilian needs.

On the basis of the value of the discoveries of May, with their unimpressive potentials, it is indicated that wildcatting still is short of providing a safe margin of the nation's ability to produce oil. The May results suggest that even the hitherto unreached goal of 4500 wildcats per year may be too low—that a sound program for oil might require even more than 4500 wildcats per year henceforth.

For the year 1943, there appears little if any chance that the desired 4500 wildcat completions actually will be recorded. In the first 5 months of this year, wildcatting was only about 2 percent in excess of that in 1942, when there were 3166 wildcat completions excluding extension tests. The need for special stimulants to wildcatting, if desired activity is to be realized, is suggested by the fact that the 3200 wildcats of 1942 represented a near-record volume of exploration, approximately that number of wildcats having been drilled in each of several recent years, with exploratory work at the highest levels in the history of the industry.

Under present conditions, it is highly desirable that new oil fields be found in PAW District 2, in order to help supply the large requirements of the East Coast from as near at hand as possible. And there was fair success in May in finding fields in District 2, especially in Illinois and Kansas, although the success was more in the number of new areas than in their quality. Illinois accounted for 1 small new oil field, 7 substantial extensions to previously established fields, and 4 new horizons for older fields. All these discoveries together, however, probably did not uncover more potential oil production than would be made available by the discovery of a single major field. Kansas furnished 7 new oil fields and 1 new oil pay during May, but no great amount of probable reserves can be credited to all of them together, pending information to the contrary. Oklahoma's May record was very poor, having embraced discovery of 1 new oil pay, 2 gas fields, and 1 gas-field extension. Indiana contributed an extension to an oil field. Michigan gained 2 small oil fields out of 17 wildcats completed. Kentucky had similar success, having gained 1 oil field through completion of 8 wildcats.

The next best region for finding new oil fields from the standpoint of relieving the Eastern scarcity is the upper portion of PAW District 3, including Arkansas, North Louisiana, Eastern Texas, and Northern Texas; and in that region there were fairly gratifying results in wildcatting in May. As previously mentioned, one of the best discoveries of the month was the finding of first-class production in a second pay horizon of the New Hope field, Franklin County, East Texas. The discovery well, four miles north of Scroggins, originally was completed April 26, 1943, for major production of 47-gravity oil in the Travis Peak sand, having flowed at the rate of 209 barrels per day through 5/32-inch choke, with the pay at 7902-8089 feet. On May 10, 1943, a dual completion for the same well was made. Operators perforated with 78 shots in Rodessa (second Glen Rose) of the Trinity series at 7295-7305 feet for natural flow of 348 barrels of oil. The Rodessa pay is slightly more productive than the Travis Peak, but the pay section is thinner.

East Texas also furnished in May, 1 new oil field, 1 oil field extension, and 1 gas field. Arkansas provided 1 new oil field. North Louisiana accounted for 2 oil field extensions and 1 new gas pay.

North Texas was in the limelight in wildcatting during May, with an extraordinary number of discoveries, although some of them were relatively unimportant. The district gained 8 new oil fields and new pay zones in 3 established fields.

West Texas wildcatting resulted in 3 oil discoveries, including the previously mentioned important Winkler County Ordovician strike. The discovery well, flowed 588½ barrels of 41.7-gravity oil daily through ¼-inch choke and 64 perforations at 10,763-10,705 feet. Ellenburger dolomite, Ordovician age, was topped at 10,460 feet, and it afforded a 180-foot section of prolific gas-distillate production at 10,460-10,640 feet, followed by a section of 65 feet or more of porous oil-saturated dolomite, with salt water definitely established from perforations at 10,752-10,772 feet. Gas-oil ratio was 1744/1, casing pressure 2875 pounds, and tubing pressure 1800 pounds. The discovery is on a comparatively narrow, or "peaked" Ellenburger structure, with undetermined north-south length, the anticline having been outlined by geophysics. The company controls all close-in acreage with its 8000-acre solid block, extending north-south and lengthwise of the structure. One or more company-owned rigs will be kept in continuous service in developing the field. While this discovery is important within itself, it is of much greater importance from the standpoint that it probably will point the way to similar deep oil production from the Ellenburger in numerous other areas of West Texas.

Likewise significant because of promising to result in additional discoveries of similar nature was the finding of the Vincent field in Howard County, West Texas. It furnishes the first production from the Lower Permian for the east portion of the Permian Basin. The well pumped 158 barrels of 27.3-gravity oil daily from Basal Clear Fork lime of the Permian following treatment at 4028-4091 feet with 1500 gallons of acid.

The Gulf Coast was not up to par in May in wildcatting results. South Louisiana found but 2 new oil pays. The Upper Gulf Coast of Texas had no discoveries. The Lower Texas Gulf Coast gained 1 small oil field, 2 gas-distillate fields, and 2 gas fields. Southwest Texas (Laredo district) recorded 1 new oil field.

Wyoming's potential reserves were increased by extensions of 2 oil fields.

California seriously needs new oil fields, but in May only gained 1 small field, in the Wheatville area of Fresno County, 5 miles southeast of Helm field. This is only the second field discovery in California this year. The first was Guijarral Hills, Fresno County, found February 16, and apparently important, although more drilling will be required to afford definite data on the size of the accumulation. California so far this year can be credited with adding no more than 20 million barrels.

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McEVOY WILL HAVE THEM

PRACTICAL OPERATING *Hints* FOR THE PIPELINER

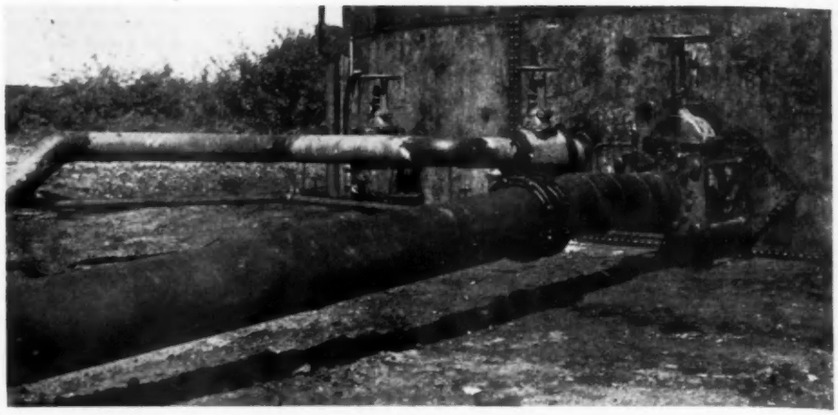
$5.00 will be paid for each illustrated acceptable contribution. Mail to The Editor, THE OIL WEEKLY, *Houston.*

1. TANK VALVES

Tie-Bolt Housings Relieve Gate Stress

THE gate valve mounted just outside a storage tank frequently is called upon to carry the weight of a considerable span of pipe, and must be stiff enough to resist expansion stresses and, in certain sections of the country, also to resist distortions introduced by earthquake shock.

To protect the valve, and through maintaining it in serviceable condition to insure retention of tank contents, one terminal equips the tank valves on the large discharge lines with a shielding cage. Two heavy squares of steel plate, bored to slip over the two pipe nipples carrying the companion flanges for the gate, are drilled to the bolt circles of the fittings, and one is bolted to the tank nipple behind the flange there which carries the discharge line gate. The other is likewise bolted to the outer end of the gate, beyond the companion flange on the pipe nipple. Thus both plates are held in place, through the use of extra long flange bolts, so as to enclose the entire gate assembly.



Supplemental plates on tank and outside valve flange permit through bolts to support pipe weight and thus prevent distortion or cramping of gate valve housing.

At the four corners of the plates are heavy through bolts, each threaded long enough to carry a back-up nut to be set snugly against the inner surface of the plate when the desired tension has been put on the through bolt by tightening up on the outside nuts.

Such a reinforcement provides ample reserve to resist all distortion, without hampering inspection or maintenance work on the gate and its flange connections.

***of Pipe Laying Gangs with* BUCKEYES!**

This pioneer line of trenchers has kept a jump ahead of pipeliner's needs. Buckeye Mainliners get down the big pipes faster; keep ahead of layers and welders. They've got the stamina for toughest going in any country. Models 32 and 48 for main lines; Models 11 and 12 for small gas, gasoline and gathering lines.

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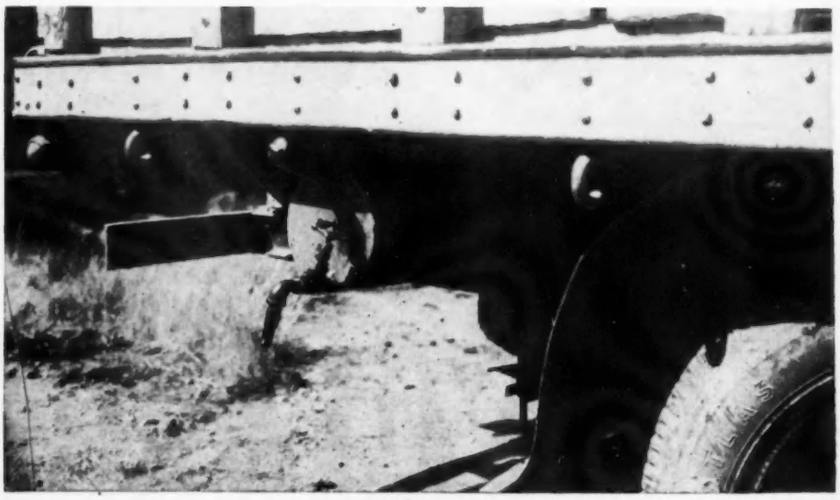
BACKFILLERS. TRACTOR EQUIPMENT.

2. MAINTENANCE

Truck Solvent Tank Betters Handling

PIPE-LINE repair crews working on maintenance are constantly exposed to oil and grease which stick readily to hands and tools, frequently difficult to remove by wiping with waste or rags. To make it possible for the tools and the operators' hands to be readily cleaned in the field, a tank of solvent is desirable.

One crew installed a small cylindrical tank beneath the bed of the welding truck, placed behind one of the rear wheel fenders and supported by iron



Slung under the truck body, this container holds solvent for cutting grease from tools and crews' hands and thus reduces hazard present in working with oily equipment.

Hastelloy Alloys

are Strong and Tough!—and Highly Resistant to Corrosive Media . . . .

Hastelloy alloys—types A, B, C, and D—combine outstanding corrosion resistance with excellent physical properties. Each was especially developed to withstand the action of one or more of the common mineral acids or other strongly corrosive agents over a wide range of temperatures and concentrations. Alloys A, B, and C compare in tensile properties to high-strength steels, while alloy D possesses high hardness and wear resistance.

Shown below is a condensed table of mechanical properties of the Hastelloy alloys. For more complete information on mechanical and physical properties, penetration test results, available forms and methods of fabrication, send for the 40-page booklet, "Hastelloy High-Strength Alloys."

MECHANICAL PROPERTIES OF HASTELLOY ALLOYS

	Hastelloy Alloy A		Hastelloy Alloy B		Hastelloy Alloy C		Hastelloy Alloy D
	Cast Metal	Rolled Metal Annealed	Cast Metal	Rolled Metal Annealed	Cast Metal	Rolled Metal Annealed	Cast Metal
Ultimate Tensile Strength, lb. per sq. in.	69,000-77,500	110,000-120,000	75,000-82,000	130,000-140,000	72,000-80,000	115,000-128,000	36,000-40,500
Yield Point, lb. per sq. in.	42,500-45,000	47,000-52,000	55,000-57,000	60,000-65,000	45,000-48,000	55,000-65,000	
Elongation in 2 in., per cent	8-12	40-48	6-9	40-45	10-15	25-50	0
Reduction of Area, per cent	16-18	40-54	10-13	40-45	11-16		0
Hardness, Rockwell	B 85-94	B 94-97	B 92-99	B 96-100	B 89-97	B 84-95	C 50-55
Brinell	155-200	200-215	190-230	210-235	175-215	160-210	
Izod Impact Strength, ft.-lb.	25-35	62-77	11-16	68-78	9-14	34-40	
Erichsen Value, Depth in mm.		10-11		10-11		8-9	
Transverse Breaking Load, 12-in. span, lb.	Note: The values given are averages and average ranges obtained with a limited number of specimens. They will serve as a reasonable guide for the engineer or designer planning equipment of Hastelloy alloys.						5,000
deflection, in.							0.070-0.080
Modulus of Rupture, lb. per sq. in.							78,000
Modulus of Elasticity, lb. per sq. in.	27,000,000		30,750,000		28,500,000		28,850,000

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straps similar to the hangers employed to support the fuel tanks on automobiles. A filler spout is welded to the end of the tank and covered with a convenient cap. At the lower edge of the head of the tank is installed valve, ell and nipple for withdrawing the solvent.

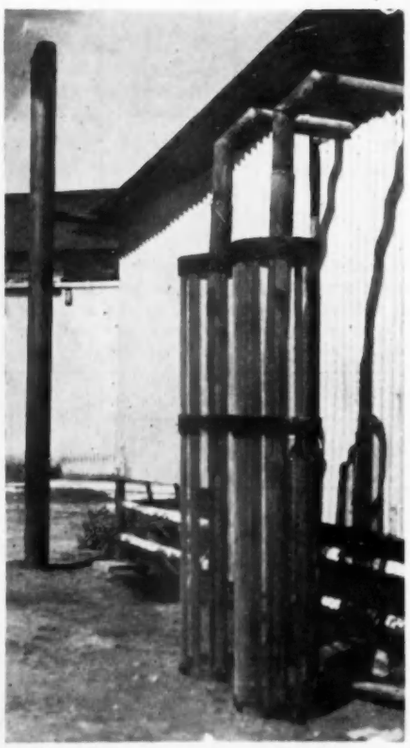
3. SAFETY

Screens Forestall Exhaust Pipe Burns

EXPOSED exhaust pipes adjacent to a building are a hazard to personnel, the surface of the pipe often being sufficiently heated to cause serious burns even on accidental, glancing contact.

One station, in which the exhaust pipes are carried underground from near the building to a distant standpipe, prevents injury at the vertical leads by enclosing each in a guard, of ½-inch mesh hardware cloth. The shield is carried on two end and one central stiffener circles of light strap steel, bracketed out from the pipe to support the wire mesh shield some 6 inches from the pipe itself.

The slight amount of heat transferred through the brackets to the supporting rings is radiated rapidly enough to insure that the outer ring is cool enough to avoid causing burns, while any heat radiated to the mesh is as promptly removed by the natural current of air entering to flow upward and along the heated exhaust pipes.



Carried on hoops supported at distance from pipe, mesh prevents accidental contact with line.

4. LOADING RACKS

Support Drains Hose To Reduce Hazards

Split riser receives drip from loading hoses and prevents formation of oil pool on ground.

A UNIQUE and very effective retainer and drain for hoses on loading racks may be made simply by setting a vertical section of 3-inch pipe midway between pairs of loading risers. The top 3 feet of the 3-inch is split down the center, and the two halves thus formed bent outward to form a Y, the troughs thus created serving the dual purpose of holding the end of the filler hose, and acting as channel to convey any drip to the main drain below.

Use of such a drain prevents fouling the ground below the loading rack walkway, eliminating a serious fire hazard as well as possible contamination of surface waters and subsequent damage suits from adjoining landowners. By setting the upright sections close to the standards carrying the walkway, the pipes are protected from damage and require no bracing other than strapping to the rack bent.

If *one* wobbles...!

The trick is to make each card help the others.

There's a similar problem in adding the synthetics that build up oil for high-speed diesel service. Just figuring out *what* to add isn't enough. For if each added synthetic doesn't help the others, then your heavy-duty oil—far from being improved—may actually suffer... along with your engine.

That needed balance of synthetics is the difference between Conoco HD oil, and just "oil with something added."

Continental Oil Company pioneered synthetic oil-improvers way back when plain mineral oil could meet engine requirements. Then as engine performance was stepped up —Continental kept pace.

So today—instead of struggling to make up for lost time—Continental is ready with Conoco HD oil. Judge for yourself whether this heavy-duty oil isn't more than a match for present-day engine loads—not only in diesels, but also in gasoline engines that must do heavy-duty. Here's the record:

Conoco HD oil is "recommended for test under actual field conditions" after repeatedly passing all detailed requirements of the 500-hour engine lubricating oil test procedure of the Detroit Diesel Engine Division of General Motors Corporation. And Conoco HD is certified "as a superior lubricant for 'Caterpillar' Diesel engines." On job after job Conoco HD oil is setting its own standard of performance among diesel operators who want the best. If you want Conoco HD oil on your job, just call the nearest office. Continental Oil Company

CONOCO HEAVY-DUTY OIL

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PRACTICAL OPERATING *Hints* FOR THE DRILLING RIG

$5.00 will be paid for each illustrated acceptable contribution. Mail to The Editor, THE OIL WEEKLY, *Houston.*

1. LIGHTING

Floodlight Betters Boiler Operation

Adjustable unit illuminates area beneath boiler shells and reduces hazard of blow-down valve operation and adjustment. Setting avoids glare on working floor of rig.

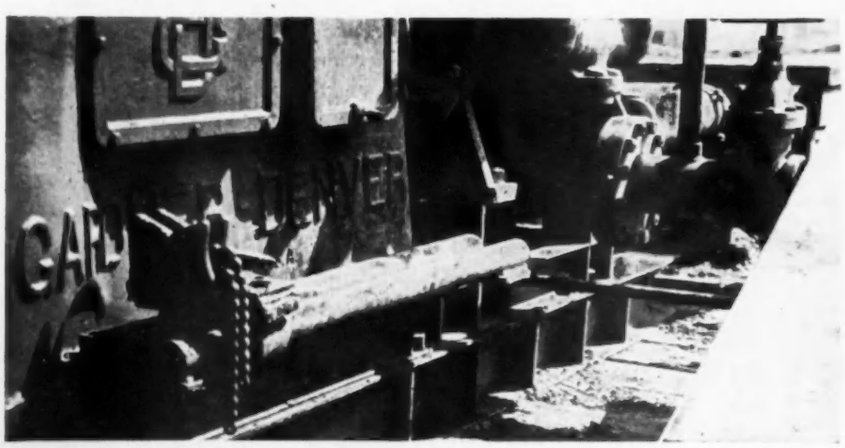
CONTRAST between the brilliantly lighted derrick floor and gauge-glass area of the boiler setting makes hazardous for the night crew any work beneath the boilers or around the blow-down lines.

By setting a floodlight at the end of the row of boilers, on a low support which enables the one unit to illuminate the space below the shell for the entire battery, one contractor provides ample light for what work must be done there. The light is placed on the side of the battery toward which the blow-down valve handles project, so as to place the bright light behind the fireman in case he must work with these valves. The work is thus strongly illuminated, while the fireman's eyes are protected by having the light source behind him.

2. HAND TOOLS

Rigid Vise Mount Speeds Maintenance

SINCE a chain vise is indispenable for holding angular objects which may require repair, adjustment or maintenance work, one contractor built a support by welding two convenient joints of 2-inch tubing to brackets which in turn are attached to the foundation bolts of one of the mud pumps.

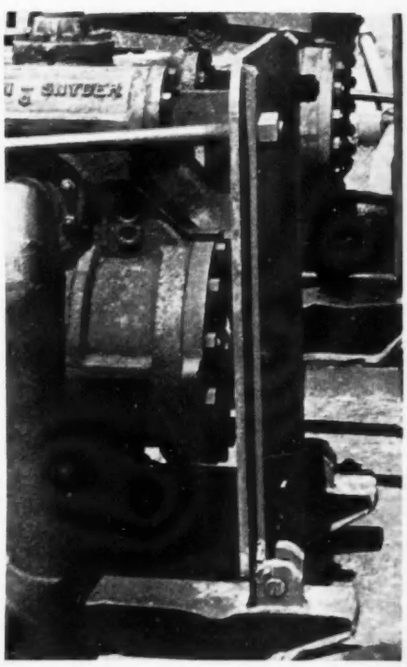


Heavy 3-inch pipe sections, welded to boiler plate brackets which fit over foundation bolts of pump, support vise against maximum permissible service demands.

A substantial plate is welded at one end of the support for bolting the chain vise where it is available for use and can be operated without danger of overturning or shaking when working with a 24-inch pipe wrench. The attachment is permanent, but can readily be removed, so that the entire outfit, pump and vise support is hauled without misplacing the vise and support.

3. SAFETY

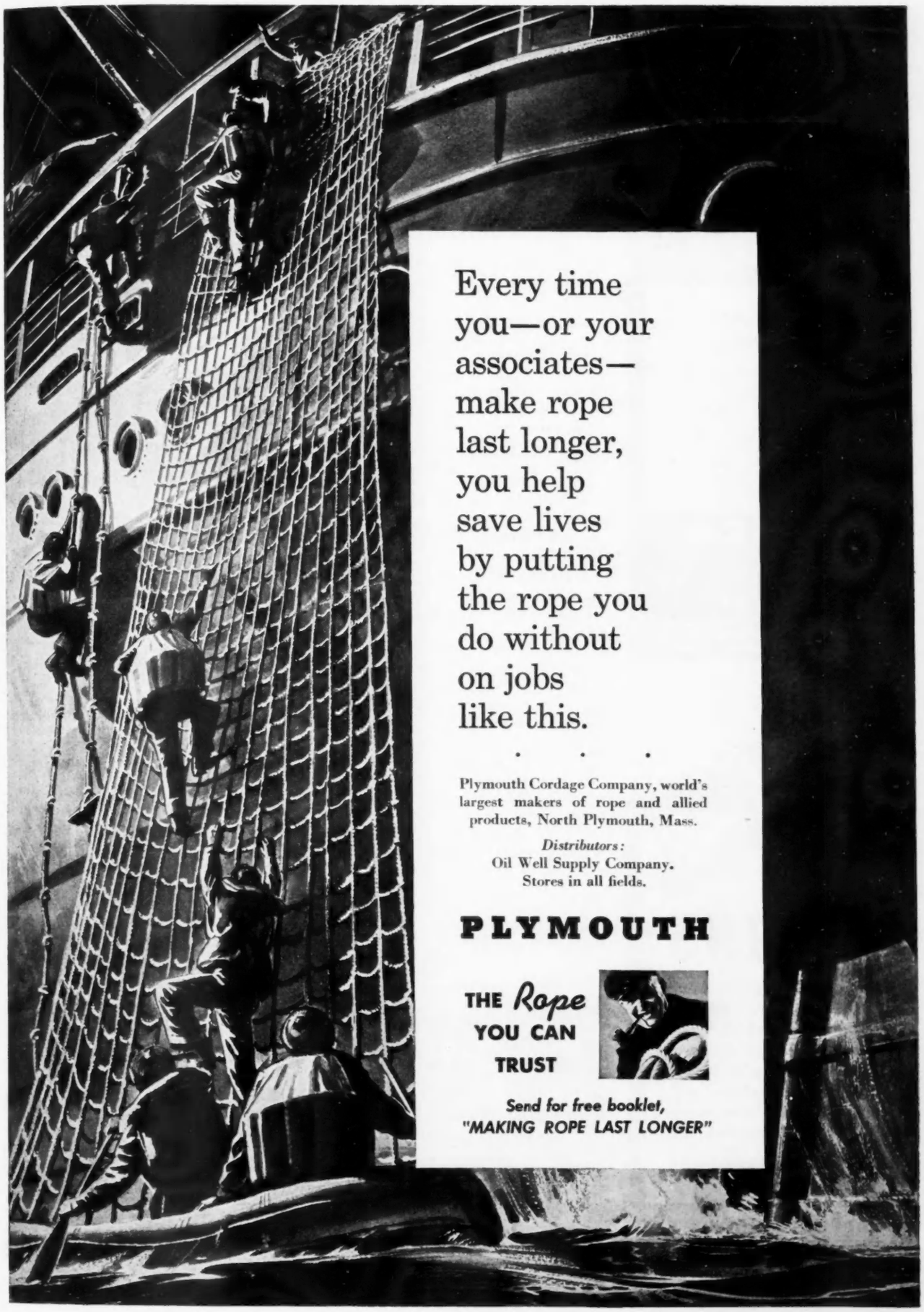
Improved Guard for Steam Pump Heads



This hinged guard, reinforced to prevent damage, may be laid flat as disassembly platform.

ON THE comparatively rare occasions when a steam piston comes off the rod, or the rod breaks, the piston is thrown against the cylinder head with explosive force. The impact is great enough to strip the nuts from the head bolts and, usually, to shatter the cylinder head itself, blasting bolts, nuts and metal fragments outward with bullet-like velocity.

The possibility of serious injury from accidents of this sort prompted attempts to design protection of some kind to eliminate, insofar as possible, danger to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employes working nearby. The photograph illustrates the type of construction thought to be most practical when considered from the standpoints of simplicity, cost and effectiveness.

Sections of 1¼-inch flat steel boiler plate of such size as to cover an area somewhat larger than the steam end of the pumps were obtained and hinged to the pump skids as illustrated. Spacers between the valve heads and the plate provided solid supports against which to tighten, and large 1½-inch steel U-bolts bent to fit snugly and completely around the steam chest complete the set-up. Although to date (18 months after the original installation), there has been no opportunity to observe results, it is believed that adequate protection has been provided.

Aside from its value as a safety device, this plate, when lowered to permit overhauling the steam end of the pump, forms an excellent working platform. Pistons, rings and other parts can be kept out of the dirt and obvious tripping hazards are eliminated.

4. RIGGING UP

Drawworks Tie-Down Speeds Adjustment

ANCHORING the end of the drawworks skid to the derrick substructure by means of eyebolts attached to clevises in the ends of the skid cross-member is facilitated if the mounting be made adjustable. One means of attaining this end is to make the end bar in two sections, one being welded to and a part of the skid, with the clevis integrally welded thereto.

Within this pipe a slightly smaller section slips, it also being equipped with a clevis in the outer end. By varying the amount this second pipe is telescoped within the rigid member of the skid, the spacing of the eyebolts engaging the clevises is altered to fit the location of anchoring members of the substructure.

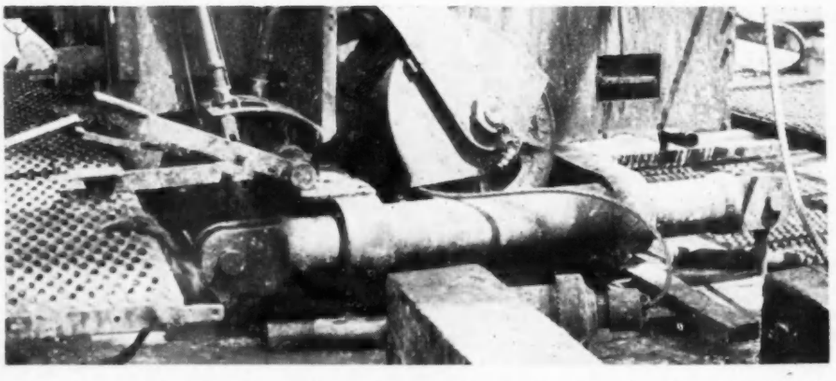
The telescoping member may be removed from the skid when on the move, or may be held in place with a light line or short rope threaded through both clevises and drawn tight. Locking by means of a pin through matched holes in both members is also a simple method of insuring the presence of the component parts when rigging up.

5. ACCESSORIES

Lifting Device Protects Structure

Eyes welded to dog-house frame afford effective winch-line attachment with proper balance.

WHERE the dog-house frame is composed of pipe, or when a wooden frame is reinforced by steel tie rods, handling of the unit by the winch truck is simplified if there be provided a place for attaching the hook. This is obtained by one drilling operator through having welded to the steel subframe, near the center of balance, an eyebolt or ring large enough to accommodate the winch-line hook, and sturdy enough to take the load of the structure and contents.



Telescoping end of skid, fitting within main cross-member of unit, enables through rods to be aligned quickly with braces of substructure for effective turnbuckle use.

☆ ☆ ☆ ☆ WASHINGTON ROUNDUP ☆ ☆ ☆ ☆

OIL investigations were the order of the day in Washington last week.

Members of Congress from the Middle West and West formed a bloc of their own to fight the Eastern bloc which is demanding more severe rationing in the interior to release gasoline for the East Coast "famine" area, and where told by Petroleum Administrator Ickes that the Mid-West need not fear a ban on non-essential driving or a cut in coupon values at this time.

An immediate result of the inquiry was a late-evening announcement by Secretary of the Navy Knox that Standard Oil Company of California had agreed to terminate the contract.

In another investigation, the House public lands committee was informed by a Department of Justice official that the Navy-Standard Oil Company of California contract for development of the Elk Hills Naval Reserve was "illegal and invalid," but indicated it would continue its probe to see what, if anything, was back of the deal, which one member said recalled the Teapot Dome scandal two decades ago.

Another investigation of the Trans-America pipe line controversy also was in the making, with a naval affairs subcommittee preparing to leave Washington for a study of the Tinsley field, from which it is proposed to pipe crude oil to Savannah, Georgia, or Charleston, South Carolina.

Meanwhile, prospects dimmed that PAW would be given control over rationing and prices with President Roosevelt expressing himself as unalterably opposed to dismemberment of OPA.

Most important actual development of the week was the announcement of the need for sharply advanced producing rates during July. PAW's allocation of production for the month being 107,000 barrels greater for the nation than during June, with Texas given an increase of 125,000 barrels daily to make up for reduced producing ability in some states besides supplying practically all the additional oil the country will need. This will push production to near all-time peaks.

Political Fight Over Rationing of Gasoline Looms

»

Raise Crude Output Rate 110,000 Barrels; Texas up 125,000

»

Roosevelt Strongly Opposed to Dismembering OPA

»

Standard Agrees to Termination of Elk Hills Contract

»

PAW Budget Increased by More Than $1,000,000

»

By B. F. LINZ
Washington Correspondent

☆ ☆ ☆ ☆

Quarrel Over Gasoline Situation May Develop Into Political Issue

The Atlantic Coast gasoline situation last week began to assume the proportions of a major political issue as Eastern and Western members of Congress split on proposals to impose a ban on non-essential driving in the Middle West to release supplies for shipment to the seaboard.

Republican members charged that Ickes had changed his mind on the question of restricting Midwestern drivers because of the political potentialities of such a move, and predicted that with the presidential campaign only a year off the Administration would do nothing which might alienate Western votes.

Preparing to leave with a Naval Affairs Subcommittee to make a field investigation of sources of supply, Representative George J. Bates of Massachusetts disclosed he had asked Ickes to "explain" why the Eastern situation will not be relieved after August 1, when the big-inch pipe line is to be completed to New York.

"I'd hate to believe that on the question of whether the East receives enough gasoline and fuel oil to maintain its internal economy, politics is going to dictate the answer," Bates said. "If this is the situation, however, the people are entitled to know about it. It's peculiar that in one year and a half we have not yet seen the solution of the Eastern seaboard gasoline problem."

Representative Charles A. Plumley of Vermont also raised the question of politics. "I doubt if Roosevelt would permit any severe restrictions on gasoline in Midwest and Western areas because of political reactions in 1944," he asserted. "Roosevelt knows he has lost the East and part of the South, and I am forced to the conclusion he is playing for the Midwest and Western votes."

Aroused by demands of the Eastern delegations for the withdrawal of additional supplies from District 2, 58 House members of Midwest and Western states organized a bloc of their own to oppose any pressure from the East to have the pleasure-driving ban extended and the value of A coupons cut.

The Western group contended that storage facilities in the Midwest are "full to overflowing" and that further restrictions in that area would not help the East but would either cause refineries to close or oil to be dumped on the ground.

Speaking as a member of the Eastern bloc, Plumley expressed satisfaction over the formation of the new group, explaining that "if all sections of the country start fighting about this gas situation maybe something will be done about it."

The Western bloc met with Senator Robert M. La Follette, Jr., of Wisconsin June 15 for a discussion of the situation and had the satisfaction of hearing Ickes assert he was not in favor of "rationing for ration's sake" and would not extend the restrictions unless something would be gained thereby.

Present System too Loose

Ickes excoriated the "looseness" of the present gasoline rationing system, declaring that "it took a pleasure-driving ban with teeth in it, plus the unpleasant shock of finding service stations out of gas, to convince the public of the reality of the shortage."

He charged that when the value of A coupons was cut in the East, the immediate result was the issuance of more B and C coupons "and so far as I can determine the non-essential use of gasoline was actually increased rather than reduced."

Fears that worn-out tires could not be replaced has had more to do with reduced gasoline consumption than the gasoline rationing, he said.

Ickes admitted that extension of the ban would not benefit the East at this time because transportation facilities are not available to move the oil.

"At the present time civilian motorists in the East have necessarily been placed on a rigorously lean diet of motor gasoline—far less than their more fortunate brethren in the other states," he explained. "To the extent that Eastern distress can be alleviated by moving gasoline from Districts 2 and 3 it is obvious that the burden can and should be shared.

"However, in considering the necessity of rationing the civilian use of gasoline and fuel oil in areas other than District 1 it is necessary to appraise the cumulative effect of many other factors—the shortage of crude oil in some refining areas, the shortage of transportation for crude oil and products, the necessity of producing fuel oil even at the expense of gasoline, the necessity for producing aviation gasoline and other war products largely at the expense of gasoline, and the necessity for

CHART OF P-98-b (As amended May 15, 1943)---HOW TO OBTAIN MATERIALS FOR THE PETROLEUM INDUSTRY

HOW TO OBTAIN MRO MATERIAL

MRO MATERIAL IS:
Material for use in or as MAINTENANCE AND REPAIR (Schedule "A"); OPERATING SUPPLIES (b)(10); or $500 CAPITAL ADDITION (Schedule "A").

HOW TO OBTAIN AN ALLOTMENT SYMBOL OR NUMBER AND A PREFERENCE RATING

Operators are authorized by the order to use the allotment symbol MRO-P-98-b and the preference rating of AA-1 for any MRO material. Although no application need be made, the delivery order filing requirements indicated below must be complied with.
Both may be used so long as a person is an "operator" and is not deprived of the priorities assistance of the order for a violation of an order or regulation. (d)(1)

HOW TO HANDLE DELIVERY ORDERS

Handling of Delivery Orders (d)(4) and (d)(5)

Less than $500	$500 or more
Submission of delivery orders to PAW NOT required.	Submit 2 copies of delivery orders for prior approval to PAW Washington Office, except in Production where they must be submitted to the District Office where the material will be used. (✓) (with statement of specific use, etc., of (d)(4))
Submit delivery order to PAW District Office where material will be used or where operator's purchasing office is located, except in Production where they must be submitted to the District Office where the material will be used:	
$1 to $99: 1 copy for information only (with statement of specific use, etc., of (d)(4))	
$100 to $999: 2 copies for prior approval (✓) (with statement of specific use, etc., of (d)(4))	
$1000 and more	$500 and more

SEE SCHEDULE "D" FOR EXCEPTIONS

(✓) In case of emergency, if the normal procedure will not make possible an early delivery, an operator may request authority to obtain delivery by submitting the information specified in (e)(1) to PAW Washington Office. Upon receipt of approval, delivery order may be placed without any need to submit it to PAW.

HOW TO OBTAIN MATERIAL FOR A CONSTRUCTION OPERATION

PRODUCTION (b)(5)(i)
NATURAL GASOLINE PRODUCTION (b)(5)(ii) & TRANSPORTATION (b)(5)(iii)
REFINING (b)(5)(iv) & MARKETING (b)(5)(v)
and RESEARCH incidental to those operations (b)(5)

A CONSTRUCTION OPERATION IS:
Any use of material for construction, expansion, improvement, reconstruction, remodeling, or alteration incident to Natural Gasoline Production, Transportation, Refining, or Marketing. (b)(8)

Operators apply for authority to begin particular construction operation(s) (other than the use of MRO material) and for an allotment of controlled materials, an allotment number, and a preference rating for such operation(s), on the following forms:

OPERATION	AUTHORITY	ALLOT. NO. & PREF. RATING
Natural Gasoline Production	PAW Form 4	WPB-617
Transportation	WPB-617	WPB-617
Refining	WPB-617	WPB-617
Marketing	PAW Form 23	WPB-617

(Schedule "E")

Each application covers specific material required for the particular construction operation(s).
The number and rating authorized may be used only for the specific material and only during the construction operation(s) for which they are authorized. (g) & (h)

(PD-200)

Handling of Delivery Orders (h)

Submission of delivery orders to PAW NOT required (since the allotment number and preference rating may only be used for specific material.) of any total or item cost.

USES OF THE ALLOTMENT SYMBOL OR NUMBER AND THE PREFERENCE RATINGS MADE AVAILABLE BY P-98-b

ALLOTMENT SYMBOL OR NUMBER

(1) Use the symbol or number to obtain Controlled Materials, as such, which have been allotted to you after application on Form WPB-617 (PD-200) or Form WPB-2565 (PD-873) or which are available through the use of the symbol MRO-P-98-b. Place the symbol or abbreviated number on your delivery orders for such Controlled Materials.
(2) Use the abbreviated number (in a Construction or Production Operation) to reallot Controlled Materials, as such, to a person, if any, who will manufacture Class A Products for you, or who will perform the construction for you. Place the abbreviated allotment number on the form for reallotment.

PREFERENCE RATING

(1) Use the rating to obtain delivery of materials which are not controlled materials but which are subject to preference ratings. Place it on your delivery order. For rules on preference rating priority see Priorities Regulation No. 1.
(2) Use the rating to obtain delivery of Class B Products. Place it on the delivery order. (Reallotments are not made to manufacturers of Class B Products. Manufacturers of Class B Products receive their allotments of Controlled Materials, as such, from the appropriate Industry Division of the War Production Board).
(3) Use the rating to qualify for allocation of certain materials. Distribution of many materials is limited by the applicable order to purchase orders bearing a specified rating. Place it on your delivery order.

HOW TO OBTAIN MATERIAL FOR A PRODUCTION OPERATION

A PRODUCTION OPERATION IS:
Any use of material for construction, expansion, improvement, reconstruction, remodeling, or alteration incident to Production. (b)(7)

Operators apply on Form WPB-2565 (PD-873) for an allotment of controlled materials, an allotment number, and a preference rating for all operations (other than the use of MRO material) during a calendar quarter or shorter period, or for one operation.
Application covers operations in general, and not any specific material other than controlled materials.
The number and rating may be used for all materials necessary to complete the operations authorized and only during the period covered by the particular application. (f)(1), (f)(3), & (f)(4)

Handling of Delivery Orders (Other than for controlled materials, as such)* (f)(5) and (f)(6)

Less than $500	$500 or more
Submission of delivery orders to PAW NOT required.	Submit 2 copies of delivery orders for prior approval to PAW District Office where material will be used.
Submit delivery order to PAW District Office where material will be used:	
$1 to $99: 1 copy for information only (with statement of specific use, etc., of (f)(5))	
$100 to $999: 2 copies for prior approval (with statement of specific use, etc., of (f)(5))	
$1000 and more	$500 and more (with statement of specific use, etc., of (f)(5))

(*) In Production it is not necessary to file delivery orders for controlled materials, as such, since controlled materials are allotted in the authorization on Form WPB-2565 (PD-873).

NOTE: The letters and numbers in parentheses refer to the paragraphs and subparagraphs in P-98-b where more detailed information on the points discussed may be found.
This chart is not an official interpretation of P-98-b. In case of any inconsistency between it and the order, the terms of the order shall control.

supplying military needs before supplying motor gasoline for relatively non-essential use."

Ickes warned, however, that the oil problem is rapidly changing from one of transportation to one of supply, which will become critical within a year.

"Up until this time," he said, "if the diversion of the tanker fleet had not dislocated transportation and hence refining operations, most, if not all, of the District 2 refineries could have run at top speed and could have alleviated the supply situation in other parts of the country. I am not at all sure that would be true next year even if we had an unlimited ability to transport crude oil or petroleum products to any point in the United States.

"While we have not yet quite hit the maximum daily production of crude oil of which we are capable, my staff tells me that we have almost achieved that point and that the high point which we can achieve is short of the goal that has been set for us. I merely mention these things to illustrate the point that even our District 3 refineries have a potential crude supply problem.

"In our District 4, the Rocky Mountain States, crude production rather than transportation sets the pace for refining operations and hence for available supply of products. In District 5, the Pacific Coast States, crude production is up to the maximum efficient rate and refineries are operating on a wide-open basis to the extent that crude is available. The gasoline supply situation there is satisfactory at the moment but the enormous demands of the Pacific war must be satisfied mainly from this area.

"Until the crude-oil supply problem has had further treatment from many angles, it would be premature (even if justifiable) to say that gasoline needs to be rationed to save crude oil for other purposes or other years," Ickes concluded. "It may be so. I don't know yet. However, regardless of the nation-wide supply situation surrounding crude oil, we cannot produce extra gasoline at the expense of critically needed war products or needed fuel oil and we must be prepared to adjust gasoline consumption to our refining, transportation and supply resources."

In the discussion which followed the administrator's statement it developed that the submarine menace is much less critical than a year ago and is not now expected to interfere materially with imports from the Caribbean and South America.

PAW Control of Gasoline Rationing Apparently Out

Prospects for transfer of control of oil rationing from OPA to PAW dimmed last week, when President Roosevelt made known his unalterable opposition to dismemberment of the price agency, proposed in Congressional pleas for a food "czar" with over-all control.

The President's firm stand was voiced almost on the heels of another reportedly stormy session of WPB at which Ickes renewed his demand for control of oil against the vigorous opposition of other members of the board.

Ickes reportedly pulled no punches in saying what he thought of rationing and price control as now practiced by OPA, elaborating upon criticisms he had made earlier before members of Congress inquiring into the Eastern gasoline situation.

Mr. Roosevelt, although he devoted himself to a discussion of the question as it related to the food problem, made it clear that he has no intention of splitting up OPA and criticised loose thinking which led to the idea that a "czar" was the answer for every ill.

He agreed that there have been delays in the handling of many matters as a result of divisions in authority, but said the new OWN was prepared to coordinate the work of the separate agencies and eliminate delays and asked that Director Byrnes be given a chance to apply the rule of judgment instead of what he called the rule of happy thought.

Eastern Oil Movement Regains Lost Ground

Rail shipments to the East Coast recovered the ground lost during the floods to average 984,522 barrels daily for the week ended June 12, PAW reported June 17.

Tank car shipments increased 69,793 barrels daily to a total of 968,535 barrels, and shipments of kerosine in drums averaged 15,985 barrels a day, it was shown.

Rising receipts and declining gasoline consumption were reflected in the stock position, which rose to 26.8 percent of normal. However, PAW officials said, 40 percent would be the minimum safe position at this time.

Tank-car shipments to New England averaged 175,471 barrels daily for the week, an increase of 13,177 barrels.

Davies' weekly comment on the situation was devoted to praise of the way in which the flood crisis was handled.

"Emergency measures plus day-and-night toil on the part of thousands of railroad and oil men have overcome many of the effects of the floods in far less time than any man familier with the problems would reasonably demand," he said. "Knowing as I do that the full repairs have not yet been made and cannot be made 100 percent effective in some cases for a little while yet because of continued high water in the Arkansas River, I am all the more impressed with the oil transportation record of the week. A great job is being done in the face of extreme obstacles."

Texas Panhandle Crude Oil Price Raised by OPA

OPA on June 15 announced an increase of seven cents per barrel, effective immediately, on Texas Panhandle crude, lifting the basic ceiling to $1.22 per barrel at the receiving tank on oil of 40° and above produced in Carson, Gray, Hutchinson, Moore and Wheeler counties.

The customary 2 cents per barrel per degree of gravity differential is maintained in a specific price schedule issued for the oil, with the bottom ceiling 80 cents per barrel for crude below 20°.

OPA estimated the new ceilings will give Panhandle producers an additional $1,500,000 a year, but there will be no corresponding increase in the maximum refiners' prices and, accordingly it was said, the raise for crude "is not contrary to the President's 'hold the line' order."

Eastern Products Line Begins Operations

Supply conditions in Washington and Baltimore, the two hardest-hit centers in the whole Eastern "gasoline famine" region, have been given some relief through the opening of a six-inch pipe carrying products from Marcus Hook.

The line into Washington, a spur from Mechanicsville, Pennsylvania, from the line running between Marcus Hook and Steubenville, Ohio, was built by Sinclair Refining Company, and has a capacity of 12,500 barrels daily.

Elk Hills Deal Terminated by Agreement After Attorney General Says It Invalid

Sharp criticism of the Navy-Standard Oil Company of California contract for development of the Elk Hills Naval Reserve (THE OIL WEEKLY, June 14) drew from the Department of Justice last week a belated announcement that the contract had been referred to the Attorney General by President Roosevelt on March 26 for analysis and recommendation, and had been found invalid.

The department came into the case after a House appropriations subcommittee, following exhaustive questioning of Rear Admiral Harry A. Stuart, director of petroleum reserves, refused to approve an appropriation of $1,748,000 required under the contract. The request for the fund was later withdrawn by the Navy Department.

In its disclosure that the agreement was under review "as the result of criticism of the contract, raising doubts as to its legality and propriety," the Justice Department stated that the attorney general's recommendations had not reached the President, but it was later revealed they were in the hands of War Mobilization Director James F. Byrnes.

Some hours after the committee recessed its hearing, Secretary Knox headed off Presidential action by announcing that Standard Oil Company of California had agreed to terminate the contract.

Knox emphasized that the deal had been called off because of the Department of Justice ruling that he had no authority to make it, and not because of any improprieties involved in the transaction.

His own investigation, he said, showed

no improprieties employed by either party. "The acting attorney general has asked me to say that the Department of Justice wishes to join in the statement and concurs fully and emphatically," he added.

The acting attorney general, Charles Fahy, was at one time solicitor for the Interior Department.

A Navy Department statement that Knox was ending the contract denied as "unwarranted and false" charges that it had not intended to make the contract public.

"It has been the settled policy of the government for many years to acquire control of these lands to conserve the oil in the ground," it said. "Except for one small parcel, Standard Oil is the only remaining private owner in the reserve. Without cooperation between the parties, operation of Standard Oil Company's wells would drain oil from Navy-owned lands, impairing their value."

A Congressional investigation of the contract was proposed June 14 by Senator Gerald P. Nye of North Dakota, who introduced a resolution calling on the public lands committee to make the study and report to the Senate the result of its inquiries, together with its recommendations.

There was also considerable discussion of the matter on the House side of the Capitol, where Representative J. Hardin Peterson of Florida said the public lands committee, of which he is chairman, will make a thorough investigation of the deal.

Peterson disclosed that he had asked the Justice, Navy and Interior Departments to send the committee all documents concerning the case, together with the names of personnel who know the complete details of the negotiations and who can testify before the committee. He declared that despite the Attorney General's statement that the Navy has withdrawn its request for funds to finance the contract it "still is in effect."

The committee planned for a series of hearings, at which Assistant Attorney General Norman M. Littell would be the first witness.

The committee was rocked back on its heels June 17 when Littell testified that a 50-page report, submitted to Byrnes, held the Secretary of the Navy to be without authority of law to enter into the agreement and the contract, accordingly, was "illegal and invalid."

He explained that the department believed the contract to be in violation of the Act of June 30, 1938, which authorized the Secretary of the Navy to consolidate the government's holdings in the reserve by an exchange of lands with the oil company for the purpose of conserving the reserves. Naval officials contended the agreement was designed to achieve conservation, but the department held to the contrary.

During the course of the hearing, Representative Alfred J. Elliott of California, commenting that the deal had "something of an inkling of the Teapot Dome scandal," suggested that the committee should make an "on the ground" investigation at Elk Hills, and Chairman Peterson said he believed at least a subcommittee should go.

OPA Interpretes Regulations on Oil Product and Tubular Goods Sales

Digests of a number of interpretations of price regulations have been published by OPA, including the following on oil country tubular goods:

Sale by one operator to another operator: Order (WPB) P-98-c covers the sale of new oil country tubular goods by one operator to another operator. The maximum price to be charged by the holding operator is determined by Regulation No. 204 (Idle or frozen materials sold under priorities regulation No. 13). A recognized oil-country jobber may enter into this transaction as an intermediary, and in such case, he is allowed to make a maximum charge of 3 percent of the f.o.b. (where located) price for this service under Schedule No. 49. This 3 percent is permissible only where the shipment is made directly from one operator to another operator and the supply house assumes the credit risk of the sale.

A sale of new oil-country tubular goods by an operator to a jobber is permitted under Order P-98-c, provided that the sale is made subject to all of the applicable WPB regulations. The maximum price which the operator may charge the jobber in this case is determined under Regulation No. 204. The maximum price which the jobber may charge the consumer under Schedule No. 49 is the applicable out-of-stock warehouse price. The 3 percent commission mentioned above does not apply in this case.

Sale by an operator to a supply house: An oil operator's ceiling price on second-hand or re-usable tubular goods sold to a supply house under Order P-98-c is established by Schedule No. 49. Since the material has not been warehoused by the holder, the permissible ceiling price is the mill delivered price at delivery point. For all practical purposes, however, the price the operator will realize is limited by the ceiling price which the supply house may charge on resale, less the cost of reconditioning and a reasonable profit.

Sale by supply house: A supply house's ceiling price on the resale of second-hand and re-usable tubular goods to consumers is fixed by Regulation No. 230 (Re-usable iron and steel pipe and used structural pipe), no matter under what conditions the re-usable tubular goods were originally purchased by the supply house. Regulation No. 230 does not make provision in any case for a 3 percent commission or mark-up.

Sale of tubular goods in the well: Maximum prices for the sale to any person of tubular goods in the well are not established by Regulation No. 204 or Regulation No. 230. Furthermore, they are exempt from the General Maximum Price Regulation, Section 1499.9 (b) (2), except where the pipe in question was originally acquired by the seller for the purpose of sale, which of course, would rarely be the case where tubular goods are sold in the well. In other words, there are, in general, no maximum prices for this type of sale.

The following interpretations of Petroleum Price Schedule No. 88 also have been issued:

Sale by petroleum broker: A petroleum broker entered into a transaction with a refinery whereby he paid the refiner for a petroleum product and directed the refiner to ship it from the refinery to the broker's customer, a manufacturer. The broker billed and collected from his customer and assumed the credit risk. The broker was a reseller under the schedule, and his maximum prices thereunder are the same as any other seller.

Sale of crude oil as fuel oil: The maximum prices of fuel oil are not applicable to a sale of crude oil unless the crude: (1) meets the specifications of some grade of fuel oil, and (2) is being sold for use as fuel oil. Thus crude oil which has been subjected to only a partial refining process and is sold for use in the manufacture of asphalt, may not be priced as a fuel oil under the schedule; the General Maximum Price Regulation applies to such processed crude oil.

Water-gas tar and drip oil: Water-gas tar and drip oil, residue produced or obtained as a result of the manufacture of water-gas from gas-enrichment oil, are "petroleum products" and are covered by the schedule, either as "residual burning, heating or fuel oils," or "distillate burning, heating or fuel oils," Section 1340.157 (b).

Reduction in gasoline octane rating: Reductions in octane rating, pursuant to directions or order of WPB, will not be deemed to require reduction in maximum prices established by the schedule, unless the octane rating is decreased to the octane rating of the next lower grade. Grades of gasoline are defined in relation to industry practice, rather than octane ratings as of a particular date.

Blending naphtha: "Blending naphthas," as used in Section 1340.157 (b), are naphthas which are sold for use in blending with gasoline. A naphtha which is sold by the manufacturer for use as a solvent in removing oil, decolorizing clay, and as a diluent to reduce the viscosity of petroleum oils before decolorizing or dewaxing, is not a "blending naphtha."

Plan Public Lands Hearing in Fall

Hearings on new regualtions for the development and operation of unit plans for development of oil resources on the public lands will be held sometime in early October, probably in Denver, it was announced last week by Ickes.

The hearings, Ickes said, have been delayed to give time for careful analysis of recommendations received in response to an inviation to the public to submit suggestions and criticisms.

A considerable volume of "highly important" ideas "which will be useful" have been sent in, he added.

Argentina Getting in Line To Take U. S. Drilling Tools

Announcement that the new Argentine government was ready to conclude an agreement with the United States contemplating that Argentina would be supplied with American oil drilling machinery with which it could produce oil for supply to neighboring republics was received in Washington without official comment, but it was disclosed that the plan has been under discussion for several months.

Argentina's declaration, coming from Foreign Minister Segundo Storni, was seen as paving the way for consummation of the agreement, heretofore held up because of the former Argentine government's unsatisfactory attitude toward collaboration with the United Nation. In some quarters, it was seen as another indication that the new government may break with the Axis.

Since our entrance into the war, the refusal of Argentina to follow the lead of all the other South American republics in breaking off relations with our three enemies has been the cause of considerable dissatisfaction and concern in Washington and brought about the adoption of a policy of giving that country only so much of the things she needed as would deter her from becoming actively friendly to the Axis.

The negotiations on oil machinery are understood to have been an example of this policy, with the Washington government unwilling to make a deal unless absolutely certain that no Argentine oil would find its way into enemy hands.

The offer to accept United States drilling machinery and in turn supply her neighboring countries with oil is regarded as evidence of the new regime's intention to carry out a program of closer cooperation, which it is hoped eventually will lead to definite alignment of Argentina on the side of the United Nations.

Cole Pipe Line Law Extension Bill Proposed

Extension for three years of the Cole Act providing for construction of pipe lines related to the national defense is provided for in a bill introduced in Congress June 15 by Representative L. Hendel Rivers of South Carolina.

The original act, sponsored by former Representative William P. Cole, Jr., of Maryland, was approved July 30, 1941, and is due to expire this June 30.

The Congressional program, however, calls for a two-year extension of the act, as provided for in a bill sponsored by Representative Clarence X. Lea of California which was favorably reported June 17 by the House interstate and foreign commerce committee.

At the same time, Rivers introduced a bill to control the development of oil lands and the production of oil and fixing the rights of the parties interested in such lands, under which all restrictions on the right to drill or to procure drilling equipment (including spacing restrictions) would be set aside, repealed and prohibited and each and every owner of oil land or land believed to contain oil or the holder of a lease or right to drill would be given the right to drill and produce oil "in such manner and to such extent as may seem to him to be advantageous," provided that all the owners and lessees in an oil area unite in an agreement for a proportional division of the oil and for unit development.

Rivers declared that "certain agencies" of the government have assumed the right to control drilling and production, in the furtherance of which they have restricted the drilling to certain size areas and prevented the drilling of small areas. Such restrictions, he said, have enabled "the owners of large areas only to drill and to drain the subsurface deposits of petroleum of adjacent areas, thus to deprive the small owner of the petroleum in his area, without compensation, contrary to the fifth amendment of the Constitution."

Lea also introduced a bill June 17 for extension of the Interstate Oil Compact act.

Budget Bureau Gives PAW $5,473,000

Voicing its recognition of the importance of keeping the armed forces and the civilian economy supplied with oil products—and commenting that it "feels that it is in competent hands"—the House Appropriations Committee on June 16 approved a Budget Bureau estimate of $5,473,000 for operation of PAW during the fiscal year beginning July 1.

This was an increase of slightly over $1,000,000 over the current appropriation of $4,381,413, but the committee pointed out that the increase is only apparent since PAW was not fully organized until well into the current year and even now has not reached its authorized strength. However, it added, if, as the fiscal year progresses, the situation appears to require consideration of further requests for funds, they can readily be brought up.

Testifying before the committee during hearings on the appropriation, Deputy Administrator Ralph K. Davies explained that the fund would permit the employment of 1565 persons, which is 132 less than previously authorized but 219 more than the number employed at the end of May.

With the Eastern gasoline situation bulking large in Congressional discussions, members of the committee questioned Davies intensively on that subject, Chairman Clarence Cannon of Missouri asking point-blank whether the shortage could have been avoided.

"The extreme position we are in at the moment could have been avoided had there been a different control over distribution; had there been a more effective rationing system," Davies said. Principally, he explained, the issuance of ration coupons was not held to the limit of the available supply of gasoline and, he said, no one knows today how many coupons have been issued.

Cannon also was interested in the adequacy of supplies for military and allied requirements, and was told by Davies that it has not been possible to supply all the 100-octane gasoline desired, although there has always been enough for our own military operations.

The United States, Davies disclosed, has been supplying oil to Russia before the lend-lease system was set up and are still sending oil to Britain in "tremendous volume" despite the improvement in the general situation as a result of our conquest of North Africa.

However, he assured the committee, "oil will not be a limiting factor in military operations, which is really the essense of the whole thing."

Davies brought to the committee's attention the desirability of more complete information from the Army and Navy Petroleum Board regarding military requirements, explaining the difficulty of forecasting future needs with the inadequate information now available, but said the matter is now under consideration and it is hoped that improvements will be worked out.

Check Promises 473 Barges by Year-End

Before the end of the year a total of 473 barges, 100 tug boats and 21 river towboats will be in operation carrying oil from Texas Gulf ports to Eastern terminals over the inland and intracoastal waterways, it was promised last week by the Office of War Information.

OWI statement followed a check of the barge program sponsored by ODT, which was approved by WPB and financed by Defense Plant Corporation.

Most of 109,600 Increase of Crude Oil Production in July Assigned to Texas

Increasing output by 109,600 barrels daily over the current month, Ickes on June 18 certified a production rate of 4,328,500 barrels daily of all petroleum liquids for July.

The only substantial increase in state output was assigned to Texas, Davies explaining that it is the only state where the quantity and quality of crude required to meet demand are readily available to transportation facilities.

Scheduled operations of transportation and refining facilities throughout the nation designed to obtain maximum production of war products require that the increased production certified for July in Texas be produced from sweet crude convenient to the big-inch pipe line and to important refining centers so that the most efficient utilization of existing installations can be realized," Davies said.

In District 1, the new certification gives West Virginia an increase from 15,000 barrels daily this month to 16,500 barrels daily, leaves New York unchanged with 15,000 barrels, and reduces Pennsylvania from 48,000 to 46,800 barrels.

All but three of the District 2 states were given reductions. Kansas was left unchanged at 300,000 barrels daily, and

Kentucky was increased from 23,100 to 25,000 barrels and Michigan from 58,900 to 60,000 barrels, but Illinois was cut from 246,200 to 233,000 barrels, Indiana from 15,500 to 14,500 barrels, Nebraska from 2400 to 2200 barrels, Ohio from 10,400 to 9800 barrels, and Oklahoma from 373,500 to 361,400 barrels.

Increasing Texas' allowable from 1,602,000 to 1,727,000 barrels, PAW also upped Louisiana from 330,800 to 331,300 barrels and Arkansas from 72,800 to 77,200 barrels, but left unchanged Mississippi at 50,000 and New Mexico at 105,700 barrels.

In District 4, Wyoming was given an increase from 97,000 to 97,200 barrels, but Colorado was left unchanged at 7000 barrels and Montana cut back back from 22,300 to 21,800 barrels.

California production was raised from 823,300 to 827,000 barrels.

Salt Water Problem Grows as East Texas Is Called on to Increase Oil Production

Texas must produce in July 125,000 barrels more oil per day than it did in June. This requirement was presented at a hearing before the Texas Railroad Commission June 18.

E. DeGolyer, conservation chief for PAW, said the government needed 1,727,000 barrels of oil from Texas in July. The June demand was 1,602,000 barrels. Further than this, DeGolyer said the extra oil must be sweet oil to be transported through the big-inch pipe line. He said the administrator wanted East Texas to produce 23 days in July, 2 days more than it has in any month for some time.

This announcement overshadowed all other questions brought up at the hearing, which included requests for minor allowable increases in fields throughout the Gulf Coast and Southwest Texas.

Anticipating the request for more production from East Texas field, a group of operators met the day before the hearing and sought some plan that would enable higher oil production without increasing the production of water.

Maximum production of 650,000 barrels of fluid was agreed upon as the most that could be expected from the field. Producing 21 days per month, the field was running about half oil and half water. The only way to produce more oil was to reduce water production or to increase water injection.

Injection by the salt water disposal company appeared to be at a standstill. The equipment available would not serve to inject enough water to make any appreciable impression on the field as a whole. If the amount of equipment available was unlimited, it would require about 12 months to install and implement before 75,000 barrels more of water could be injected. Apparently the only method available was to provide some plan that would reduce water production.

Testimony showed that 523 wells were producing 149,000 barrels of water, if these can be shut in, then the entire program can be followed: At least proponents of this system believe it offers the solution.

However, it was believed necessary to compensat owners of these wells if they are to be shut in. To do this, it was proposed to allow the production of their oil from leases located in the heart of the field.

An order was presented to the commission for consideration which would close in wells producing 100 barrels of water or more, "providing there are no injection facilities in the area, or the injection facilities are overloaded or the transfer will be for the good of the field." Such closing in would be done at the request of the well owner only.

The closed-in well would then be credited with a declining allowable. That is, it would be tested and its potential determined, but a maximum potential of 40 barrels of oil would be assigned to any well. Then the curb would be applied to determine how long this well would be permitted to have an allowable (and how much). The decline would be plotted down to two barrels.

Then some well located in the heart of the field would be selected to produce this transferred allowable, but no more than six barrels per day might be produced from any particular inside well. Neither could an inside well be selected for extra production if it was producing more than 25 percent water.

One operator suggested that the field be zoned, since most of the water that is causing the trouble is located in the north end where difficulty with injection has been encountered.

Commissioners Thompson and Jester had already announced their opposition to a transfer plan, but it is possible that they will approve the proposal "for the duration." It was explained that the term "for the duration" meant until the salt water emergency had passed or for 12 months, whichever was shorter.

Thompson Warns Of Oil Shortage

Ernest O. Thompson, Texas Railroad Commissioner, warned the nation may be caught short on oil by the end of 1945 unless prompt action is taken to permit an increase in crude oil prices to stimulate wildcatting. Thompson sounded the warning in an address before the Houston Rotary Club June 17. Chairman Beauford Jester and Olin Culberson also were speakers.

Drilling costs have increased approximately 40 percent since the price of oil was pegged, and the OPA has had a recommendation from both the industry and PAW for some time that an average raise of 35 cents per barrel is justifiable under present conditions, Thompson pointed out.

It was pointed out that so far this year 328 wildcat dry holes have been drilled in the state while only 24 wildcats have opened new oil fields. Declaring that large quantities of crude is now going to the production of aviation gasoline, Thompson said the industry must find new fields to keep up the supply, and the discoveries must be made before many months have passed.

West Texas-New Mexico Crude Moves in Big-Inch

Initial movement of sour crude from West Texas and Southeastern New Mexico through the War Emergency Pipe Line, Inc.'s Longview-Norris City 24-inch, began at 6 p.m. June 16 at rate of 240,000 barrels daily. Schedule calls for 36-hour run, then the carrier will alternate in batching sweet crude from the East Texas field and that from the Permian Basin, with stocks on hand governing the volume of each handled. The sour oil is supplied through feeder lines operated by Atlantic Pipe Line Company, Pan-American Pipe Line Company and Sun Pipe Line Company. A substantial portion of the first month's runs of sour oil will come from tank farms in the Houston-Beaumont district. Crude shipments via the big-inch previously were restricted to that produced in East Texas field, and mixture of Gulf Coast G grade with the former.

Consideration has been given by the officials of the War Emergency Pipe Line, Inc., towards the construction of a pipe line bridge across the Arkansas River, near Little Rock, instead of replacing the washed-out crossing with a buried line. Preliminary estimates indicate that about 9 months would be required to install the bridge.

Rebuilding of Corpus-Houston Line to Be Pushed

Rebuilding of Southwest Emergency Pipe Line, Inc.'s Coupled 150-mile combination 14- and 16-inch pipe line between Refugio and Houston has been authorized by Defense Plant Corporation. The couplings are to be removed and the joints welded. This work was deemed necessary after trial tests with oil through the converted gas pipe early this month revealed that the 18-year old line was not serviceable for handling oil. An earlier test of the line with fluids was not possible since the system was used for gas until completion of the oil pump stations.

Crews will be placed at opposite ends of the system by O. C. Whitaker Company and Williams Brothers Corporation, pipe line contractors, to facilitate the renovation work, which may require four months and cost approximately $2,000,000, according to preliminary estimates.

The Refugio-Houston line is to serve as a feeder of crude and burning oil from Corpus Christi to the War Emergency Pipe Line, Inc.'s Lines to the East Coast with rated capacity of 80,000 barrels daily. It can also serve as a relay unit in moving Permian Basin sour oil to the big-inch, with Humble Pipe Line Company making deliveries from the Basin to Corpus Christi through its 60,000-barrel line, which is inactive except for 6000 barrels daily to San Antonio refinery.

Lease Sale

Bids on restricted lands being offered for oil and gas lease will be opened Thursday, July 15, at the Kiowa Indian Agency, Anadarko, Oklahoma.

The offerings include 54 tracts in Caddo, Comanche, Cotton and Grady counties and total 7410 acres. The offerings by counties are as follows: Caddo, 17 tracts, 2320 acres; Comanche, 17 tracts, 2320 acres; Cotton, 11 tracts, 1680 acres; Grady, nine tracts, 1090 acres.

Crude Oil Production and Runs to Stills Near Year's Highs; Heavy Fuel Stored

The industry stepped up production and refinery processing of crude oil during the week ended June 12 and maintained both at levels close to the highest of this year, or around 8 percent higher than at this time last year.

With the refinery runs higher, production of both light and heavy fuel oils was increased over the previous week's rates and output of gasoline was practically unchanged. In consequence, it was possible to add nearly 200,000 barrels to stocks of residual fuel oil, although a small quantity of light fuel oil came from storage, while the draft on gasoline stocks was around normal at slightly more than a million barrels for the week.

At the current rates, crude oil production is fairly well balanced with refinery demand, as evidenced by the fact that crude oil stocks have not changed greatly in recent weeks. There was a withdrawal of 645,000 barrels in the week ended June 5.

Crude runs to stills averaged 3,799,000 barrels daily in the week of June 12, up 137,000 barrels from the previous week and 305,000 barrels (8.7%) above runs in the corresponding week last year. This increase of about 9 percent in refinery demand for crude is about in line with the gain that has occurred in the consumption of all petroleum. This latest rate of refinery runs was within 50,000 barrels of the high for this year, and represented the use of about 79 percent of the nation's refining capacity. The runs were higher for the week in all districts. Plants in the districts of the East Coast and Southwest in the aggregate used 73 percent of capacity in processing 3,799,000 barrels of crude per day. Appalachian plants used 89 percent of capacity, Middle West 85 percent, Oklahoma-Kansas plants 83 percent, Rocky Mountains 63 percent, and California 88 percent (722,000 barrels per day).

The addition of 191,000 barrels to stocks of residual fuel oil was made possible because production during the seven days was 169,000 barrels greater than in the previous week; and this accumulation followed a withdrawal of 472,000 barrels in the previous week. Despite weekly fluctuations, stocks of residual fuel oil now are being held about stationary, being about the same now as 3½ months ago. While there was a net gain in stocks, there was a 356,000 barrel draft on stocks in California and a slight withdrawal in the Middle West, more than offset by an addition of 513,000 barrels in the East Coast-Southwest, and smaller additions in the Appalachian, Oklahoma-Kansas, and Rocky Mountain districts. All districts showed increased production of residual during the week except California and Oklahoma-Kansas.

The reduction in stocks of gas oil and distillate fuel of 22,000 barrels for the week represented the net difference between a large withdrawal in the East Coast-Southwest and a smaller withdrawal in California on the one hand, and substantial additions in the Appa-

Crude Oil Production in the United States

(Estimates compiled by The Oil Weekly. All figures indicate daily averages, in barrels.)

STATE OR DISTRICT	PRODUCTION IN WEEK ENDED June 12	June 19
Arkansas	73,950	73,850
California	774,550	780,400
Long Beach	34,150	32,150
Midway-Sunset	56,750	56,000
Kettleman Hills	43,550	42,050
Wilmington	94,900	94,250
Rest of State	545,200	555,950
Colorado	6,900	7,100
Illinois	224,800	215,400
Salem	32,100	29,300
Louden	42,100	38,500
Other New Pools	139,400	136,600
Old Pools	11,200	11,000
Indiana	11,400	14,150
Kansas	305,700	302,200
Kentucky	22,100	21,700
Louisiana	333,950	326,800
North Louisiana	85,550	85,700
South Louisiana	248,400	241,100
Michigan	58,050	59,850
Mississippi	52,800	53,600
Missouri	95	95
Montana	18,150	20,900
Nebraska	2,150	2,050
New Mexico	97,300	97,300
New York	14,150	14,100
Ohio	8,950	9,250
Oklahoma	334,650	334,100
Oklahoma City	59,500	57,950
Seminole Area	73,800	73,100
Rest of State	201,350	203,050
Pennsylvania	45,100	46,700
Tennessee	30	30
Texas	1,498,950	1,498,150
Upper Gulf Coast	381,900	380,350
East Texas Field	335,050	335,050
Rest of Eastern Texas	123,650	123,550
Lower Gulf Coast	133,600	134,550
Southwest Texas	56,700	56,650
South Central Texas	16,550	16,700
West Texas	229,100	229,100
North Texas	132,050	131,950
Panhandle	90,350	90,250
Utah	10	10
West Virginia	10,050	9,250
Wyoming	92,750	94,600
Total United States	3,986,535	3,981,585

Trends of Operations and Changes in Stocks

Figures on crude stocks are from Bureau of Mines weekly reports; all others from American Petroleum Institute weekly reports, which are estimates on Bureau of Mines basis.

(All figures in thousands of barrels—add 000)

ITEM	Crude Oil Prod. Barrels Daily	Week Ended	Runs to Stills Barrels Daily	Week Ended	Crude Stocks Barrels	Week Ended	Gasoline Stocks Barrels	Week Ended	Gas Oil & Distillate Stocks Barrels	Week Ended	Residual Fuel Oil Stocks Barrels	Week Ended
Highs:												
1939	3,910	8- 5	3,650	10-21	278,607	5-26	87,769	4-22	39,562	10-28	116,237	8-26
1940	3,890	3-16	3,690	6-22	265,865	8-31	102,817	4-20	49,051	10-19	109,135	9-14
1941	4,337	11-22	[1]4,120	10-18	266,187	3-29	99,727	3-29	[1]54,983	11-15	102,448	1- 4
1942	[1]4,337	2- 7	3,961	1- 3	263,208	3-28	[1]109,281	3-14	49,861	11-14	95,857	1- 3
1943	4,020	5- 8	3,849	5- 1	245,752	5-29	94,159	3-20	42,913	1- 2	72,881	1- 2
Lows:												
1939	[3]1,601	8-26	3,125	2-18	[2]229,127	10-12	71,152	10- 7	20,722	4-15	105,397	4- 8
1940	3,335	11-30	3,370	1- 6	237,339	1-27	79,847	11- 9	23,551	4- 6	102,344	2-10
1941	3,364	1-11	3,490	1-18	240,399	11-15	79,923	10- 4	28,381	4-12	90,914	7-12
1942	3,297	7- 4	3,393	5-23	231,896	12-12	75,934	12- 5	29,240	4-25	72,962	12-26
1943	3,821	1- 9	3,579	3-13	232,191	1- 9	81,114	6-13	30,732	4- 3	66,991	5- 1

Trends in Week Ended:	Crude Oil Production Daily	Crude Oil Runs to Stills Daily	Crude Oil Stocks Week End	Gasoline Production Weekly	Gasoline Stocks Week End	Gas Oil & Distillate Production Weekly	Gas Oil & Distillate Stocks Week End	Residual Fuel Production Weekly	Residual Fuel Stocks Week End
1942:									
January 3	4,038	3,961	244,440	13,797	92,987	3,855	49,357	6,918	95,857
January 31	3,871	3,848	250,740	13,292	97,810	3,817	40,674	6,640	91,189
February 28	4,016	3,675	259,373	12,131	105,635	3,799	34,547	6,813	88,585
March 28	3,820	3,667	263,208	11,663	105,624	3,661	31,756	6,344	83,045
April 25	3,581	3,506	257,073	10,535	102,897	3,267	29,240	6,869	81,107
May 30	3,877	3,522	255,023	10,478	95,355	3,034	31,384	6,993	79,628
June 27	3,719	3,581	253,364	10,713	88,396	.....	32,551	.....	77,304
July 25	3,691	3,658	249,262	10,864	82,281	.....	35,966	.....	77,816
August 29	3,964	3,697	249,007	11,300	80,831	.....	42,060	.....	78,034
September 26	3,909	3,802	242,785	10,954	80,550	.....	45,945	.....	78,943
October 31	3,901	3,731	239,266	11,153	79,159	.....	48,131	.....	79,166
November 28	3,878	3,736	234,850	11,269	78,854	.....	49,739	.....	77,796
1943:									
January 2	3,871	3,734	233,938	10,957	82,420	4,285	42,913	7,683	72,881
January 30	3,826	3,698	233,863	10,339	88,830	3,888	37,057	7,452	70,763
February 27	3,873	3,709	235,217	10,566	93,157	4,230	32,939	7,839	70,140
March 27	3,896	3,742	239,126	10,231	94,079	3,541	30,980	8,018	67,938
April 24	3,913	3,737	242,035	10,583	91,001	3,954	31,142	8,168	67,455
May 29	3,970	3,679	245,752	10,656	83,937	3,798	32,274	7,672	67,682
June 5	3,933	3,662	245,107	10,632	82,205	3,063	32,577	7,505	67,461
June 12, 1943	**3,988**	**3,799**	.....	**10,626**	**81,114**	**3,520**	**32,555**	**7,674**	**67,652**
June 13, 1942	3,700	3,494	[4]254,316	10,298	91,846	3,549	30,447	6,615	79,120
Change:									
In week	+55	+137	—645	—6	—1,091	+457	—22	+169	+191
In year	+288	+305	—9,209	+328	—10,732	—29	+2,108	+1,059	—11,468
In year	+7.7%	+8.7%	—3.6%	+3.1%	—11.6%	—0.8%	+6.9%	+16.0%	—14.4%

[1] All time peak. [2] Lowest since April, 1922. [3] Lowest since October, 1922, due to shutdown of six Mid-Continent States. [4] Stocks, June 6, 1942.

lachian, Middle Western, Upper Mid-Continent and Rocky Mountain districts. All districts produced more of the light fuel than in the previous week except Oklahoma-Kansas and Rocky Mountain.

Having declined 1,091,000 barrels in the week of June 12, stocks of gasoline totalled 81,114,000 barrels. They were then almost 11 million barrels (11.6%) lower than a year previously, this decrease being probably somewhat less than the curtailment since a year ago in the consumption of gasoline. For the whole United States there was practically no change in the rate of production of gasoline from the previous week—a decrease of 6000 barrels. But production rates changed considerably for different districts. The East Coast-Southwest turned out 205,000 barrels less than in the preceding week and there were reductions also in the Appalachian and Middle West districts. On the other hand, production was increased in Oklahoma-Kansas, Rocky Mountain and California districts.

Crude oil production was within 38,000 barrels of this year's peak in averaging 3,988,000 barrels per day during the June 12 week. The output was 55,000 barrels a day greater than in the previous week and 288,000 barrels (7.7%) higher than in the week ended June 13, 1942.

Stocks of crude oil came down 645,000 barrels between May 29 and June 5, having totaled 245,107,000 barrels on the latter date, according to the Bureau of Mines. The crude inventory now is about 9,000,000 barrels, or 4 percent, lower than a year ago.

Panhandle Crude Prices Up 7 Cents Per Barrel

Major purchasers of Texas Panhandle crude, including Phillips Petroleum Company, Humble Oil & Refining Company, The Texas Company, and others last week had adopted new price schedules for that oil, providing for the 7-cent increases authorized by the Office of Price Administration effective June 16.

The new top price for the crude is $1.22 covering 40 gravity and above, and the prices are scaled downward for heavier oils in the amount of 2 cents for each degree of gravity. The Phillips schedule goes down to $1.00 for 29-29.9 gravity, that of The Texas Company to $1.10 for 34-34.9 gravity, and that of Humble to 80 cents for 19-19.9 gravity.

Shell Buys West Texas Crude Oil from Humble

Shell Oil Company has purchased 100,000 barrels of West Texas crude held in storage by Humble Oil & Refining Company near buyer's McCamey terminal. This oil will be moved by Shell Pipe Line Company, which is operating both of its Permian Basin outlets at capacity, and also using common carrier service of The Texas-New Mexico Pipe Line Company to Houston.

E. RUSSELL LLOYD, West Texas consulting geologist and operator, has donated 750 volumes of geological publications to the Midland County Public Library, including many bulletins and professional papers that are now out of print.

Shortages of Petroleum Felt in Most Districts

Shortages of petroleum products and lack of adequate transportation continue to cause serious difficulties and problems in supplying demand, and markets remain extremely tight.

There has been no improvement in the critical general shortage in the East Coast district, supplies of gas oil and distillate fuel as well as those of gasoline being very scarce and apparently growing still scarcer. Current requirements of residual fuel oil also are extremely heavy, and accumulation of inventories is not possible. There has been, however, a little easing of demand for kerosene and a resultant rebuilding of inventories of that product to some extent.

Shortages are becoming more acute also in the Middle West. Practically all products are in greater demand than supply. The call for gasoline of all grades is exceptionally urgent, while all grades of fuel oils and burning oils also are in exceptionally strong demand. Shortages have caused trouble in scheduling exchanges among refiners, and marketers are finding great difficulty in obtaining supplies to meet their needs. Especially scarce is unleaded third grade gasoline, in reflection of efforts of farmers to obtain supplies. With tractor fuels also scarce, the farmers are being forced in some instances to purchase gasoline of higher grade. While demand for residual fuel oil continues strong, it has been somewhat alleviated by wide scale conversion of war industries to coal.

Refiners of the upper Mid-Continent report serious difficulty in obtaining permits to ship gasoline by tank car into northern states, while also unable to work out exchanges with other companies for supplying the customers involved. However, the Mid-Continent plant owners have no fears that gasoline will back up in storage, declaring that local demand will absorb all their output. Lubricants are in good demand, with bright stocks especially scarce and held down in price only by ceilings.

On the Gulf Coast, gasoline continues very scarce, and refiners are not in position to quote prices in response to many inquiries. The scarcity is becoming increasingly noticeable, and in some instances is approaching the critical stage.

In the Western Pennsylvania refining district, there is continued heavy demand for most products, with supplies inadequate for meeting it. Stocks of most products are generally low, and gasoline is particularly scarce.

Kentucky Association To Meet July 24

The Kentucky Oil & Gas Association will hold its regular annual mid-year meeting at Ashland, Kentucky, on July 24. The meeting will be limited to one day.

Surveys Started on Stanolind Trunk Line

Stanolind Pipe Line Company has started ground survey on its recently WPB-approved 383-mile 16-inch trunk line to extend from Slaughter field, West Texas, to connecting Mid-Continent systems near Drumwright, Okla. The field station will be located on Labors 75 and 76, League 37, Zavalla County School Lands Survey, Hockley County, near Sundown. Supporting field gathering system is in service. Pipe is due to start leaving eastern mills in October. The company proposes to install 18 80,000-barrel second-hand tanks, with pan-type of floating roofs, near Sundown and along the route. Field tanks will be filled with crude as they become available, thus accumulating a backlog for the system.

Emergency Storage Being Provided at Baytown

Twelve 55,000-barrel steel storage tanks have been ordered erected by the War Emergency Pipe Line, Inc., at Baytown, Texas, which will serve as one of the terminals on the 20-inch products line being built from the Houston-Beaumont refining district to the East Coast. A portion of the Stanolind Oil Purchasing Company's Yount-Lee tank farm near Beaumont will be converted into products stock tanks.

Congress Sub-Committee to Study Arkansas Problems

A meeting will be held at El Dorado, Arkansas, June 21, by a sub-committee of the naval affairs committee of Congress for the purpose of obtaining information on petroleum reserves of Arkansas, the production of petroleum and various problems incident thereto, and wildcatting for new petroleum fields. The subcommittee is composed of the following members of Congress: L. Mendel Rivers, chairman; F. Edward Hebert, George J. Bates and William H. Wheat.

Army Sets Up New Fuel, Lubricants Division

Recall by the War Department of Lieutenant Colonel Jay L. Taylor, former executive vice president of Halliburton Oil Well Cementing Company, who had been loaned to the War Food Administration to serve as deputy administrator in charge of farm labor, was announced by WFA June 15.

Taylor will act as assistant to Colonel William E. R. Covell, recently assigned as head of the new fuel and lubricants division of the Army Service Forces, and the WFA announcement said his recall was at the request of Undersecretary of War Robert P. Patterson and General Brehon Somervell, head of the Army Service Forces.

The new fuel and lubricants division will consolidate all Army oil activities and operations except those relating to aviation gasoline and is expected to take over Brigadier General Walter B. Pyron, who has been assigned to Somervell as liaison man.

Taylor is expected to be promoted to colonel and Covell made a brigadier general in the near future.

Commending Taylor's services with the WFA, Administrator Chester C. Davis said: "At my request Lieutenant Colonial Taylor was detailed by the U. S. Army to organize and head the farm labor division of the WFA. In nine weeks he had accomplished a great feat of organization here and in the field."

F. A. LICHTENHELD of Cities Service Oil Company spoke before the regular monthly meeting of the Seminole chapter of API, on "Care and Maintenance—Industrial Motors," June 17.

U. S. Field Operations

Illinois Basin

White County Well Has Shallower Showing

Eason Oil Company's Clark 1, C SE NW NW 30-4s-11e, White County, was waiting on cement with casing set on Pennsylvanian sand saturation at 1333-46 feet. If this well is successful it will be the field's first producer in the formation, all other production being deeper.

Madison County: Eason Oil Company's Mayer 1, SE NW SW 15-4n-6w, in the village of Marine, was drilling at 2333 feet, near Trenton lime, but probably will be plugged back to test Devonian. On a drill-stem test of the latter at 1776-96 feet, 30 feet of oil and 90 feet of oily mud were recovered. A second drill-stem test at 1796-1813 feet recovered 330 feet of oil, 120 feet of oil-cut mud and some sulphur water.

Clay County: Kingwood Oil Company's Banks 1, 14-5n-5e, offset to L. G. Waggoner's Pilcher 1, was drilling plug, and Gulf Refining Company has another offset nearing completion. Kingwood Oil Company did not recover saturation in a core of the McClosky but a drill-stem test showed several hundred feet of oil. Pilcher 1, C SW NW 13-5n-5e, opened the area with 699 barrels recovery on pump.

Clinton County: Black & Pierson's Kluth 1, SW SW SW 22-2n-1w, wildcat a mile south of Shattuc, was drilling at 2400 feet and headed for Devonian lime at about 2940 feet. This test found saturation in Cypress and Benoist sands but water was recovered along with the oil in drill-stem tests of both formations.

Indiana

Warrick County: White Eagle Oil Company's Scales 1, NE SW SW 36-4s-7w, wildcat 4 miles northwest of Tennyson, is a location for 1800-foot cable-tool test.

Clay County: H. C. Detrick's Duncan 1, SE NE SE 27-9n-6w, is moving in cable tools.

Posey County: Bur-Kan Petroleum Company's Aldridge 1, NE NE 4-6s-14w, is preparing to spud a new wildcat operation.

Kentucky

Daviess County: Andrew Teller's Alvey 1, NE NE SW 15-N-28, 1½ miles south of Panthre and 1 mile southeast of Miller & Shiarella's Miller 1, pool opener, was dry in Benoist sand and was drilling at 1820 feet.

Union County: H. H. Weinert's Greenwell 1, NW NW NW 11-O-20, wildcat 1½ miles north of Morganfield, was testing Ohara lime at 2558-63 feet, after hole filled to 1200 feet when plug was drilled.

Calstar Petroleum Company's Mason 1, C N ½ NE SE 16-P-20, 1½ miles east of Uniontown, was drilling at 2060 feet, apparently 40 feet low structurally.

Sun Oil Company's Drury 1, SE NW NW 21-O-18, in Spring Grove producing area 5 miles west of Morganfield, is moving in materials.

Henderson County: Heidrich-Wilson-Raman's Overby 1, NE NE NE 2-P-25, wildcat 3 miles southwest of Spottsville, has abandoned at 2212 feet.

Sinclair Prairie Oil Company's Bradley 1, NE 8-N-23, wildcat 2½ miles east of Poole, completed in Tar Springs at 1939-51 feet, for an initial production of 117 barrels on pump, after 10-quart shot.

Kansas

New Production Level, Two Extensions Recorded

Cities Service Oil Company has a new producing horizon in the Hansen pool of Phillips County with completion of Templeton 1, SW SE SW 14-5s-20w, in Arbuckle lime. Arbuckle was topped at 3530 feet and casing was perforated from 3530 to 3601 feet. Treated with 6500 gallons of acid the well pumped 383 barrels of oil in 24 hours. Total depth is 3780 feet.

Russell County: The Williamson pool has been extended east by Skelly Oil Company's Boxberger 1, C SW NW 2-14s-14w, which produced 74 barrels of oil in 9 hours, from Lansing lime at 2996-3004 feet.

Ohio Oil Company has opened a new pool with Strecker 1, C S½ SE SW 21-15s-14w, which is producing from Arbuckle lime topped at 3334 feet. Well was treated with 1300 gallons of acid and swabbed 160 barrels of oil in 5 hours before it was placed on pump for test. Total depth is 3356½ feet. Oil is 48 gravity.

McPherson County: The Texas Company apparently has given the Henne pool an extension with Spillman 1, SE NW 16-17s-1w. Well had the oil show in Mississippi chat at 2628 feet with bottom of the hole at 2634 feet.

Cowley County: The small Rahn pool was given a boost in importance with discovery of Bartlesville sand production at the north edge where the field has not been defined. B. B. Blair et al's George Rahn 1, NW NW NE 13-34s-5e, topped sand at 2950 feet and at 2971 feet flowed an estimated 240 barrels per day. Drilled to 2990 feet, the well is now cleaning out after a shot. Nearest production in the pool is from Mississippi lime.

Oil Is Ammunition

Oil is a vital element in winning this war. Oil is needed to produce the three greatest weapons of war: food, transportation and munitions. Implements of war cannot be produced or used without oil. An army without oil, today, is a defeated army. A navy without oil is a useless navy.—Major General Edward Martin, *Governor of Pennsylvania.*

Oklahoma

Okfuskee County has Second Strike in Two Weeks

Another Cromwell sand strike for Okfuskee County, the second in two weeks, is Midco Oil Company's Cradukes 1, NE NW NE 24-12n-8e, which is rated important due to the fact that it is only a mile from a discovery reported two weeks ago. Cromwell was topped at 3493 feet and good saturation was cored at 3496-3504 feet, the latter figure the total depth. Seven-inch pipe was set to 3486 feet for a test. The other discovery was McIntyre, Sherman and Cummings' Lincoln 1, C SW NW 23-12n-8e, which got Cromwell sand about 3648-53 feet.

Oklahoma County: Hightower et al's Young 1, SE SE NE 11-14n-4w, not far from Abe Gutowsky et al's discovery, Wagner 1, NWc SW 32-14n-4w, a Hunton-lime producer which has caused considerable speculation in the area, apparently is a dry hole. The hole was drilled to 6885½ feet in Wilcox and had no shows. The Gutowsky well made approximately 500 barrels when completed.

Logan County: Anderson-Prichard Oil Corporation encountered oil shows in Morgan 1, C NW NE 33-16n-1w, a wildcat southeast of Guthrie. Bartlesville sand was topped at 5287 feet and pipe was set to 5288 feet. Total depth is 5302 feet. The well bailed 1½ barrels of oil per hour and will no doubt add to the interest in Cather 1, NE NW NW 16-16n-2w, a Guthrie townsite wildcat, for which location was made by Eason Oil Company, Sunray Oil Company and Cities Service Oil Company.

McLain County: Carter Oil Company's Cottingham 1, C SE SW 4-7n-3w, is drilling below 2800 feet. This wildcat is on a large block of acreage and may be drilled to more than 10,000 feet.

Creek County: Shell Oil Company's Townsend 1, NW SE SE 36-17n-7e, topped Misener sand at 3520 feet and found a show of dead oil in a core from 3530-36 feet. It was drilling below 3550 feet in shaley dolomite.

Osage County: The estimated value of the new Big Bend pool of Osage County was boosted when A. G. Oliphant and C. B. Peters' second well in the pool, which they discovered, began flowing 1168 barrels of oil in 24 hours from Layton sand at 2846 feet. Located in NWc SE 20-25n-3e, the well is bottomed at 2867 feet. The operators' first well in NEc SW 20-25n-3e, made 30 barrels per hour from Layton sand at 2850-75 feet.

Comanche County: The Texas Company is expanding its development in the Fort Sill Reservation oil and gas pool, which it discovered. The pool has two oil and two gas wells and three tests are drilling. The discovery, Rolls 1, C SE SW 5-3n-10w, made a good gas well at 886-974 feet when casing was perforated after a deep test failed. The second well, a southwest offset to the

discovery, was completed as an oil well in the same zone. One of the oil wells now producing made 54 barrels of oil in 7 hours from a Pennsylvanian sand at 800 feet. The recent relaxation of spacing regulations applies to the area in which the Fort Sill pool is located and The Texas Company is drilling on a 10-acre spacing pattern.

New Mexico

First Production from Delaware Sand

First Delaware oil production for southeastern New Mexico has been developed by Schuster and Messenger's Page 1, C SW NW 15-21s-28e, Eddy County and 5½ miles southwest of the Getty pool, in bailing four barrels oil hourly from Delaware sand at 2620-45 feet. Seven-inch pipe will be set at 2515 feet. This wildcat is a north offset to Fulton et al's Page 1, which showed promise of a small pumper after nitro shot in Delaware sand at 2710-60 feet, having plugged back from 2840 feet.

A. L. Jones and Robert McKee's State 2, C SE SE 3-19s-29e, 4½ miles south of Loco Hills field, is installing pump after testing 54 barrels of oil daily on swab from lime at 2577-2600 feet. Yates and other's Evans 3, first deep test for the Square Lake field, drilling 5150 feet, carrying small amount of oil from upper lime zones.

Lea County: Maljamar Oil and Gas Corporation's Chessman 2, 3 miles south by east of Maljamar field, rated at 25-30 barrels oil daily after nitro shot to 4771-90 feet, having plugged back from water at 4840 feet. Seven-inch will be cemented for completion as pumper.

West Texas

Third Ellenberger Well in Winkler County Tests Good

Stanolind Oil & Gas Company and Shell Oil Company's Blue 1, prospective third consecutive Ellenburger discovery for Winkler County, will attempt to ascertain if the water table had been reached in drilling to 10,697 feet, or 204 feet in Ellenburger, in making initial test through perforations at 10,647-10,690 feet. Last cores indicated water, but no production test was made prior to landing 7-inch at 10,691 feet, except when tester at 10,484-10,539 feet indicated prolific oil and gas flow.

Amon G. Carter's Walton-Pure 2-C, Ellenburger discovery for the Keystone field, made official gauge June 14 for natural flow of 1697.11 barrels of 40.5-gravity oil, gas-oil ratio 1567/1, in 6 hours through ¾-inch choke on tubing and 1-inch positive choke on casing. Production is from dolomite at 9550-9655 feet, with 307-foot section of prolific gas-distillate zone and possibly 26 feet of oil zone excluded by casing. Pipe has been purchased for second test on discovery site of 240 acres, and half dozen nearby tests to be started within few weeks, with Sid W. Richardson et al, Gulf Oil Corporation, Phillips Petroleum Company and Sinclair Prairie Oil Company booked for tests.

Yates Deep: Standard Oil Company of Texas' Smith-Douglas 1, southwest edge of Yates field, was drilling dolomite at 8880 feet in Ellenburger, topped at 8734 feet on corrected call with elevation of 2595 feet. This initial deep test for the productive shallow area indicated probable production in recovering 50 feet of 43-gravity oil and 90 feet of drilling fluid when tester was used at 8687-8731 feet. Bottom hole pressure with tool open was recorded at 1200 pounds, then closed in pressure of 4208 pounds.

Andrews County: Humble Oil & Refining Company's Crews-Mast 1, 3 miles west by north of Means field, is coring lime 4715 feet on 8500-foot contract. Three drill stem tests between 4614 and 4694 feet yielded oil- and gas-cut mud without water. Skelly Oil Company's University 1-K, 2¼ miles east by north of Emma field, plugged back from water in Clear Fork zone 5600-7500 feet to 5550 feet, then set 5½-inch at 5468 feet to try for production in Holt lime. Phillips Petroleum Company has authorized 6 additional Clear Fork tests for the Embar pool. Reports prevail that the company will shortly divert the high-gravity sweet crude from this area to its Borger natural gasoline line.

Pecos County: Phillips Petroleum Company's Price 1, second deepest test in Permian Basin is drilling at 11,540 feet in Basal Pennsylvanian shale and chert.

Crane County: Magnolia Petroleum Company's Lea 21, situated in east extension of regular producing sector of Sand Hills field and 2½ miles east by north of Ellenburger production, logged only 280 feet of Simpson in entering Ellenburger at 6460 feet, with elevation of 2602 feet. Drill stem tests at 6471 feet and 6489 feet yielded rotary mud without shows despite nominal oil saturation in recovered cores, and third test was underway at 6518 feet. The Ordovician beds dip sharply to the east and west from the axis of the structure, and this well has raised possibility of flank production.

North Texas

Prospective Ellenberger Well in Archer County

Archer County recorded prospective Ellenberger producer when Frank Buttram et al's John O'Donohoe 1-B, C NE NE ATNCL Section 104, 7 miles southeast of Mankins, recovered sufficient oil and gas with rotary mud when tester was used at 4970-5085 feet to warrant setting 7-inch at 5070 feet. Completion will be made through perforations. This wildcat also indicated production posibilities from saturation at 4749-64 feet in Bend, topped at 4747 feet, being 17 feet high to Hedrick Oil Company's McCrory 1, situated 1½ miles to northwest and a failure at 4809 feet. Buttram et al's Bend marker is 109 feet high when correlated with L. T. Burns' Turbeville 1-AA, located 1¾ miles south, and latter also quit in Bend.

Montague County: Continental Oil Company's Vaughn 1, north offset to the 3860-foot Strawn discovery for the Illinois Bend pool, confirmed upper Strawn pay in registering official potential of 204 barrels of 29-gravity oil, gas-oil ratio 376/1, on natural flow through ¼-inch tubing choke from sand at 3466-71 feet. Development will likely spread to the nearby bed of the Red River which is classed as federal lands. Continental Oil Company's Clisbee 1, south offset to prolific Bend pay discovery in Hildreth area, tested 108 barrels per hour rate in Bend conglomerate at 6077-6123 feet, and was running tester on Lower Bend conglomerate saturation at 6270-92 feet, with well bottomed at 6293 feet. This area and the nearby Mueller pool promise to develop into important crude reserves. Stanolind Oil & Gas Company's Cobb 1, 2 miles northwest of Bowie, abandoned in Ellenburger 7298-7421 feet, and Reed 1, situated on Novona-Ringgold production trend, drilling 4510 feet.

Young County: Standard Oil of Texas and Hanlon-Buchanan's Wells 1, 2 miles east by south of their Holbert pool, entered Bend at 3869 feet, or 3 feet high, and logged nominal oil saturation in coring to 3877 feet.

East Texas

Wood County Discovery Offset Running Low

Shell Oil Company's Bailey 1, west offset to the Bobby Manziel pool discovery in Wood County, failed to encounter normal thickness of oil sand in coring through pay zone to 6366 feet, where a fishing job developed. This confirmation test entered Paluxy at 6250 feet with elevation of 445 feet, and is 27 feet low.

Magnolia Petroleum Company's Bailey-Howle 1, south offset to the discovery, was drilling at 4595 feet, with base of Austin at 4029 feet, being 24 feet high on this marker. Amerada Petroleum Corporation's Rogers 1, northeast outpost, entered Georgetown at 5110 feet, 3 feet high, and was drilling at 5395 feet.

Henderson County: Stanolind Oil & Gas Company's Tri-Cities-Holland 1-B extended Tri-Cities pool 1⅜ miles northeast in flowing 148 barrels of 65.6-gravity distillate and 6 barrels of water with 2,000,000 feet of gas through 3/16-inch bottom-hole choke. Production is from Rodessa perforations at 7665-7700 feet, plugged back from dry Travis Peak. The company is starting Tri-Cities-Leopard 1-C, a mile southeast of this well, and Tri-Cities-Meredith 1-D is showing a small volume of gas from Travis Peak at 8330-8673 feet. The area is served by a gas line, while distillate is trucked to Stanolind Pipe Line Company's Cayuga station.

Smackover Project: Humble Oil & Refining Company's Graham 1, Hunt County, entered cherty conglomerate at 8475 feet, and was drilling at 8690 feet. Sun Oil Company's Rutledge 1, northeastern Kaufman County, was drilling dry Travis Peak at 6980 feet.

Southwest Texas

Potential Being Made On Goebel Discovery

The Wilcox trend in the Karnes-Bee-Goliad County area still is the main area of interest to producers as wells continue to find oil and gas shows while other wells are preparing to drill.

Of recent interest is Henderson Coquat's Wilcox discovery of the Goebel field in Live Oak County, three miles

northeast of Oakville townsite, where a potential gauge is being completed. Goebel 1 first was tested through perforations at 7081-84 feet, 12 shots, and a drill-stem test flowed the water cushion in 20 minutes and yielded 38.8-gravity oil at the rate of 196 barrels per day along with 1,200,000 cubic feet of gas, using 3/16-inch top choke. Another test, using ¼-inch choke, flowed at the rate of 220 barrels of pipe-line oil daily with 2,220,000 cubic feet of gas, 1900 pounds working pressure. Coquat is completing the well in the 7081-86 foot section to increase the oil yield. Oil sand was logged at 7080-90 feet in the bottom portion of a sand that showed distillate at 7050-80 feet.

Coquat also logged shallower sand at 6903-82 feet, and perforations at 6970-82 feet developed 1730 pounds working pressure and flowed 100 barrels of 47.5-gravity distillate along with 1,400,000 cubic feet of gas in 8 hours. Wilcox was topped at 6843 feet.

This discovery is 1350 feet from the west line and 2000 feet from the south line of Refugio County School Land Survey 6, Abstract 398.

Jim Hogg County: M. L. Massingill and Texon Royalty Company are opening a new Cockfield sand field four miles southwest of Hebbronville. Yeager 1 drilled to 3771 feet after topping O'Hearn, upper Cockfield, at 3764 feet and was still in sand at 3771 feet. The 5½-inch casing was set to 3762 feet, and after swabbing the well made 4 barrels of 36.2-gravity oil by heads hourly through ⅜-inch choke with 410 pounds pressure on casing. The well is cleaning out and tanks are being erected for potential test.

Located out of the northeast corner of the H. C. Yeager survey 28, the well topped the Cole sand at 2515 feet, Government Wells at 3228 feet, and Mirando at 3534 feet.

New Pays: Transwestern Oil Company has opened a new shallow pay on the west flank of Seeligson field, Jim Wells County. Seeligson Estate 4-B flowed 57 barrels of 31.1-gravity oil daily through 3/32-inch choke with 375 pounds working pressure. Known as sand zone 13, the perforations were made at 4915-20 feet and are shallower than any other sand in the field. Operators plan to produce from the shallow sand and from 6123-25 feet where 1800 feet of oil was recovered on a drill-stem test.

Union Producing Company has opened a new distillate sand in Fox 25, in the Refugio-Fox field of Refugio County. The well was perforated at 6626-36 feet in a new deeper pay for the area, although gauge was not run. The well was shut in with 2500 pounds pressure building up on tubing. Total depth is 7190 feet.

Texas Gulf Coast

Distillate Flow Established In Matagorda County

The Sugar Valley area of Matagorda County finally is being established to distillate production with Superior Oil Company making completion tests at Peterson 1, which flowed at the rate of 124 barrels of 53.5-gravity distillate daily from perforations at 9754-59 feet through ¼-inch choke, with 3250 pounds tubing pressure. Previously, a test at 9754-64 feet yielded considerable distillate, but water broke into the flow and a new test had to be made higher in the hole.

Liberty County: General Crude Oil Company apparently is opening new pay horizons in the Kirby field with the Welch-Fee 4-A flowing from a series of new perforations above the regular field pay. Holes were made at 7510-20 feet, 7555-65 feet, 7385-95 feet, and with all holes open the well produced around 304 barrels of oil daily, with 2.5 percent water, through ¼-inch choke. Tubing pressure mounted to 350 pounds, casing 1200 pounds. The hole is bottomed at 8550 feet with 5½-inch set at 7893 feet.

Wilcox: Shell Oil Company is preparing to drill a 11,800-foot Wilcox wildcat on the northwest side of Mercy field, San Jacinto County. It is Turner 1, on a 52-acre tract in K. Holliday survey. It will be the deepest ever drilled in the area. Top of the Wilcox at Mercy is around 8100 feet and the field produces from the 8300-foot section.

Abercrombie Company and Magnolia Petroleum have abandoned a deep Wilcox test five miles north of Cleveland in San Jacinto County. The well, carried to 11,768 feet, was taken over from Ohio Oil Company after the latter had drilled it to 10,000 feet.

Wildcats: The East Bernard prospect of Wharton County is in line for another test with Cockburn Oil Corporation preparing to drill a deep test at Leveridge Estate 2, on a 257-acre tract in Johathan Scott survey. The discovery well, drilled in 1941, produced distillate and has been shut in.

Pure Oil Company is preparing to drill Woods 1, wildcat two miles south of Almeda in Fort Bend County. It is in I. C. Stafford survey and is projected to 8000 feet.

South Louisiana

Depth Record Set When Well Makes Distillate

A new world's depth record has been established for production with Union Producing Company making completion tests on a semi-wildcat well in the DeLarge area of Terrebonne Parish. The old record was in this distillate field, and was set by Fohs Oil Company in Buckley-Bourg 1 with production from 13,266 feet.

The new producer is Fitzpatrick-Vizard 1, SWc 77-19s-17e, and establishes distillate production at 13,475 feet in Miocene, being around 200 feet lower than the Fohs well which was drilled in 1938. The hole was drilled to 13,560 feet, and did not have any serious mechanical trouble. Operators set 5½-inch casing on bottom and perforated at 13,475-90 feet for the test. A packer was set at 13,464 feet with 3/16-inch choke being used on bottom and ¼-inch on top, with 3000 feet of water cushion. The water reached top of hole in 31 minutes, and at the end of 41 minutes the pressure had built up to 2000 pounds. The top choke later was changed and the pressure dropped to 1500 pounds.

The tool was closed in one hour and pulled, with the recovery being 120 feet of condensate. Besides setting a new depth record, the well indicates a major structure with fairly thick and rich distillate sands. Sand was topped around 13,465 feet and continues to 13,520 feet, believed to be the same sand section that produces in the discovery well, ½ mile west. Other sands that may be capable of producing were logged higher in the hole.

This extension is the second well for the field, no drilling having been done since 1938 when Fohs Oil Company completed the discovery. Recently, Union Producing Company took over the deal mainly to develop the structure's gas producing possibilities. The well was drilled by Loffland Brothers with a contract depth of 13,500 feet.

Calcasieu Parish: E. R. Brann is opening a new field in the Perkins area with Edgewood 1, 6-8s-10w, flowing at rate of 150 barrels of oil daily on a drill-stem test. The hole is bottomed at 5002 feet, the oil believed to be coming from the Frio section. The flow was through 10/64-inch choke with 500 pounds pressure on tubing and 700 pounds on casing. Humble Oil & Refining Company has a small gas well in the area, but Brann's well is the first to yield oil. Brann formerly was in the production department of Petroleum Administration for War, Houston.

Plaquemines Parish: Gulf Refining Company has opened a new deep producing level in the West Bay field with State-West Bay 5, lease 105, 35-22s-30e, flowing 234 barrels of oil daily through 3/32-inch choke with 4550 pounds pressure on tubing. Perforations were made at 10,755-68 feet in Miocene. Operators ran into shale at 10,731 feet in the original hole. Later the well was sidetracked and drilled to 10,795 feet where liner was set for completion. This field produces from several sections.

Arkansas

Atlanta Extension Has Oil from Smackover

Tide Water Associated-Seaboard Oil Company's Young 1, NE SE 18-18s-19w, Columbia County, 8000 feet west of deep Smackover production at Atlanta, flowed 40.2-gravity black oil from Cotton Valley sand at 7210-12 feet. In drill-stem test using ¼-inch top and bottom chokes it flowed, during one hour, 13.5 barrels of fluid, flowing pressure at 325 pounds. A retest of this section was planned before decision to explore other sands in Cotton Valley horizon. Young 1 topped Smackover lime at 8246 feet, set 5½-inch casing at 8355 feet, drilled to 8356 feet.

Johnson County: Arkansas Louisiana Gas Company's Hendrix 1, SE 21-10n-21w, ¾-mile west outpost to the company's discovery at Silex, Pope County, set pipe in lime at 3255 feet, total depth. It is plugged back, however, as sands at 2860-2895 feet showed salt water. Hendrix 1 will test section at 2740-2810 feet. Shallow gas sand was picked up during drilling at 920 feet. The discovery at Silex, Arkansas Louisiana Gas Company's Ladd-Strong 1, SW SW 22-10n-21w, in 24-hour initial test, flowed 17,000,000 cubic feet of dry gas from stray sand at 2500 feet. From another sand found at 2800 feet the discovery flowed 9,000,000 cubic feet of dry gas. The company's Ladd-Strong 3 at Silex, E½ SW NE 27-10n-21w, has set 8⅝-inch pipe on bottom at 2979 feet. It will complete as a gasser.

California

Four Wildcat Tests Showing Possibilities

Four wildcats that have developed shows hold the spotlight. Continental Oil Company has picked up good-looking oil sand which if it proves out will be a new deep-zone discovery for Holser Canyon field, Ventura County. Chanslor Canfield Midway Oil Company's try for a northwesterly extension of Republic pool, Sunset-Midway area, Kern County, blew in on bailing test, flowing clean oil under strong pressure. Amerada Petroleum Corporation's recently completed Helm area, Fresno County wildcat, which extended that field 1½ miles southeast, was recompleted from the formerly untested Temblor for an initial of 1037 barrels of 35.5-gravity oil, which is 900 barrels better than the results from a lower interval first tested. The same company's newest Lodi area, San Joaquin County, test primarily seeking gas, gave excellent returns on a formation test of interval between 2300 and 2310 feet.

Half a dozen new wildcats got under way this week.

Fresno County: The Pure Oil Company-The Texas Company joint wildcat try for production in Santa Rita area, Gamboni 1, 28-10-13, had mud and salt water recovery from test at 3667 feet, after all sands below found wet. It is abandoning at 6425 ft.

Kern County: Standard Oil Company of California has announced location for a wildcat, 80-7, in SE SE SW 7-30-22, McKittrick area.

Richfield Oil Corporation is starting its sixth test on Tejon Ranch, Tejon 4, SW SE NE 34-11-19. This is the 35th exploratory project for the area.

Chanslor Canfield Midway Oil Company's wildcat show for an extension northwestwards of the Republic pool, Midway-Sunset area, No. 79-6, 6-32-23, staged a blow-out on a preliminary bailing test with an indicated productive capacity far stronger than anything that had been anticipated. It is being completed from some 100 feet of oil sand indicated by electric log as a solid section topped at about 2930 feet.

Los Angeles County: Standard Oil Company of California's newest wildcat, on Whittier-Murphy field holdings, marks the company's return to one of the first fields found in California 45 years ago. It has produced continuously since with output still above 1000 barrels daily, from seven zones in the Repetto between 200 and 3000 feet. The new venture is to test deep zones.

Ventura County: Continental Oil Company's deep test in Holser 2, 14-4-18, Holser Canyon field, topped a rich-looking oil sand at 7878 feet, in the Miocene. After coring between 40 and 50 feet of it casing was run for a production test.

JAMES D. HANCOCK, Dallas producer, and J. C. Burleson have organized the Ledge Petroleum Company, Inc.

Rocky Mountain Area

Deeper Reserve Seen Possible at Lance Creek

Ohio Oil Company's Converse 8, NW SE SW 32-36n-65w, an old well deepening from 5421 feet where it originally completed in 1940 for 1340 barrels daily flowing from the Basal Leo sand, stopped at 5112 feet, set tester at 5498 feet and showed 2 barrels of oil with drill stem open one hour from the Bell sand. It is drilling at 5117 feet with possibility of opening another deep reserve at Lance Creek field, Niobrara County, Wyoming, which from 1935 through 1940 was the most active area in the Rocky Mountain division.

Elk Basin: Ohio Oil Company's Mack-7 3, NE NE NW 31-58n-99w, extended the recently proved Tensleep sand, Elk Basin field, Park County, Wyoming, ¾ mile west, flowing 1064 barrels initial through perforations at 4654-4824 feet. Top of Tensleep is at 4645, total depth 4854 feet.

Colorado: Located a mile northwest of the discovery, Continental Oil Company's Pollock 5, CNE SW 2-9n-79w, cored saturated oil sand in the Frontier at 4990 feet on McCallum Dome, Jackson County, Colorado, and is preparing to make drill-stem test.

Michigan

Wildcat Drilling Even with Last Year

Eight of 15 first reports for the week call for exploratory wells to push 1943 wildcatting even with last year. Each year at this date showed 77 first reports.

Osceola County: Deepened from 3157 to 3172 feet, Union and Atlas' Allen 1, Section 31-19n-9w, Rose Lake Township wildcat, showed 500 feet of water in Traverse and now will be deepened about 500 feet to test Dundee. Test carried 1500 feet of oil in Traverse before deepening.

Clare County: Pure Oil Company will deepen Davis 2, W½ E½ NE 33-19n-6w, Temple field, from old completion point in Dundee of 3910 feet to approximately 5300 feet. Deepening is to test Sylvania. It is the first Sylvania well for the field.

State Lease Sale: Operators paid total bonus of $25,050 for ⅞ leases on 28,536 acres of state-owned land at June 10-11 sale, averaging 87 cents per acre, all wildcat. This compared to average of $1.21 an acre paid in April and $1.04 average paid in January. Top bid was $21.25 an acre. Land Department officials said the sale pushed state acreage under lease to 525,000 acres, a new all-time record.

R. S. WARREN, who joined The Cooper-Bessemer Corporation eight months ago as assistant advertising manager, has been promoted to sales promotion manager. For seven years before joining Cooper-Bessemer, Warren was in charge of advertising and sales promotion for Invincible Manufacturing Company, Dover, Ohio.

What You Think Is Important

Politicians seem to have abandoned the old-fashioned custom of representing the people. Answering a recent letter from a group of constituents one senator said: "I wish I could be as sure of what is best for this country as are the people who write to me." Business neither desires to assume nor can afford such doubtful independence. In our case what the customer thinks has been of growing importance for 35 years. Why else would so many buyers TRY PELCO FIRST?

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Lake Charles

United States Well Completions

ARKANSAS

Columbia County—Macedonia: Tide Water-Seaboard's Dodson 1, c n½ se 20-18s-21w, dual completion: perf Cotton Valley 7196-7200 ft, flow 142.9 bbls, 4 hrs, ¼-in, cp 1340, gor 760-1, gr 46.6, perf Smackover 8873-95 ft, flow 20.42 bbls, 2 hrs, ¼-in, tp 2275, gor 11,850-1, gr 64.2, td 8920 ft.

Columbia County—Stephens-Smart: T. W. Lee's Weaver 2, ne ne 15-15s-20w, Tokio, perf 2489-99, pump 36 bbls, td 3000 ft.

G. H. Vaughn's Tidewell 1, sw ne ne 11-15s-20w, Tokio, perf 2476-2500, flow 160 bbls, td 2543 ft.

Union County — New London: Kerlyn Oil Co.'s Union 1, se sw 7-18s-11w, abnd 6027 ft.

Marine Oil Co.'s Frost 7, ne se 12-18s-12w, perf Walton sand 5688-5707, pump 40 bbls, td 5698 ft.

CALIFORNIA

Fresno County—Coalinga, old field: Shell's 157-26, nw sw se 26-19-15, pump 228 bbls 20.6-gr, perf 3067-2967, 2879-2715 ft, black shale 2723 ft, td 3080 ft.

Shell's 148-29, se se sw 29-19-15, pump 107 bbls 17.9-gr, perf 2302-2271, 2241-2211 ft, black shale 2060 ft, td 2310 ft.

Standard's 107-7C, nw sw se 7-20-15, pump 21 bbls 17.2-gr, 100 ft perf 2225 ft, td 2228 ft.

Kern County—Belridge, South: Belridge Oil Co.'s 78A-34, sw se se 34-28-21, pump 68 bbls 14.2-gr, td 790 ft.

Shell's FKL 51-12, ne ne sw 12-29-21, pump 100 bbls 13.5-gr, perf 1080-1070, 1029-974, 947-925 ft, td 1110 ft.

Kern County—Buena Vista Hills: Standard's 84-33B, nw ne sw 35-31-23, pump 40 bbls 27.3-gr, perf 2759-2988, 3105-3410 ft, td 3412 ft.

Standard's 117-15D, se sw ne 15-32-24, pump 14 bbls, 130 ft perf 2588-ft, td 2829 ft.

Standard's 37-11D, ne ne nw 11-32-24, pump 36 bbls, 64 ft perf 2898 ft, td 2900 ft.

Kern County—Elk Hills: U. S. Navy's 32-34S, sw ne nw 34-30-24, pump 415 bbls 20.7-gr, perf 3017-2977, 2957-2909 ft, td 3020 ft.

Kern County—Greeley: Standard's KCL 11-37, ne se sw 18-29-26, flow 370 bbls 35.5-gr, 1264-in, 400/1000 lbs, Rio Bravo 11,428 ft, Vedder 11,468 ft, td 11,510 ft.

Kern County—Kern Front: Pacific Western Oil Corp.'s Robinson A-16, ne ne nw 22-28-27, pump 35 bbls, 140 ft perf 2338 ft, td 2338 ft.

Standard's 41, se nw ne 15-28-27, pump 8 bbls, 143 ft perf 2308 ft, td 2310 ft.

Kern County—Midway-Sunset: Honolulu Oil Corp.'s E & M 8, sw sw sw 10-31-22, pump 8 bbls, 146 ft perf 485 ft, oil sand 325 ft, oil sand and boulders 366 ft, base sand 435 ft, td 531 ft.

Trico Oil & Gas Co.'s Petersen 1, se sw se 16-31-22, abnd 1049 ft.

Kern County—Mount Poso: Ring Oil Co.'s Bowles 29-22, nw ne sw 29-26-28, abnd 1837 ft.

Kern County—Poso Creek-Premier: Honolulu Oil Corp.'s 58, sw ne se 8-28-27, pump, no est, 165 ft perf 2916 ft, td 2981 ft, pd 2932 ft.

Los Angeles County — Dominguez: Shell's Reyes 130, 2595 ft s 1250 ft e nwc Reyes lease, abnd 8992 ft.

Union's Hellman 54, 613 nly 1722 ely fr c/l Victoria and Central Aves, pump 45 bbls 31-gr, 167 ft perf 4485 ft, td 4485 ft.

Los Angeles County—Inglewood: Tide Water Associated's Vickers 78, 610 ft s 1540 ft e of most wly corner Vickers lease, flow 925 bbls 30.8-gr, 12/64-in, 135/1850 lbs, 960,000 gas, 329 ft perf 8285 ft, td 8287 ft.

Los Angeles County—Montebello: Standard's Baldwin 105, pump 50 bbls 28-gr, 585 ft perf 2819 ft, td 2820 ft.

Los Angeles County — Torrance: C. H. Le Bow and George A. McNee's Dominguez Estate 2, 1789 ft n of n/l Huntington St. and 264 ft e c/l Victor, flow 125 bbls, 380 ft perf 3665 ft, td 3665 ft.

Orange County—Huntington Beach: Nicolai and Becker Oil Co.'s 1, 160 ft n, 310 ft w c/ls Garfield and Florida Sts., pump water with trace oil, 36 ft perf 3785 ft, td 3785 ft.

Sacramento County—Rio Vista: Standard's State 4, 511 ft s 2635 ft e nwc 12-3-2, flow 17,512,000 gas, ¾-in, 1591/1452 lbs, 277 ft perf 5454 ft, green sand 5060 ft, td 5517 ft.

Santa Barbara County—Gato Ridge: (Old well deepened) Barnsdall's Tognazzini 6, nw sw ne 9-8-32, pump 315 bbls 17-gr, 1264 ft perf 3767 ft, otd 2515 ft, td 3767 ft.

Ventura County — Ventura Avenue: Shell's Taylor 160, 446 ft n 4235 ft w c/l No. 11, flow 965 bbls oil, ⅝-in, 150/600 lbs, perf 9607-9001, 8944-8660 ft, td 9610 ft.

COLORADO

Rio Blanco County — Rangely: United Oil Production Co.'s Hunter-Green 7-A, cnw sw 5-1n-102w, swab 25 bbls, 2nd fractured zone Mancos shale, td 595 ft.

GEORGIA

Coffee County—Failure: Taylor's M. Knight 1, 800 ft e and 400 ft n of swc land lot 327, District 6, abnd 1240 ft.

ILLINOIS

Clay County: Gulf's Pierce 2, w½ se sw 13-3n-6e, abnd 3001 ft.

Texas Co.'s Bloemker 7, nw se nw 3-5n-7e, Weller 2530-42 ft, 105 bbls, 2542 ft.

Clinton County: Eason - Moulton's Breese State Bank 1, nw sw sw 36-3n-4w, abnd 1097 ft.

Hamilton County: Texas Co.'s Flanningan 1, sw sw se 17-4s-7e, Aux V 3262-84 ft, 257 bbls, 3284 ft.

Sun's Moss 2, se ne ne 12-6s-5e, abnd 3284 ft.

Texas Co.'s Tedford 1, se se sw 22-6s-6e, Aux V 3090-3115 ft, 71 bbls, 3115 ft.

Jasper County: Roy Lee, Trustee's McClure 2, s½ sw ne 17-6s-10e, McCl lime 2819-23 ft, 81 bbls, 2858 ft.

Jefferson County: British American's Chesnik 1, se sw sw 26-2s-1e, Benoist 1974-79 ft, 40 bbls, 1979 ft.

Central Pipe Line Co.'s Stover 1, e½ nw se 36-2s-4e, abnd 3100 ft.

Gulf's Gentle 1, nw ne 36-2s-4e, McCl lime 3071-84 ft, 82 bbls, 3084 ft.

Wabash County: C. U. Bay et al's Hockgeiger A-1, nw nw se 14-1s-13w, Walts 1876-88 ft, 70 bbls, 1888 ft.

E. O. Olds et al's Landis-Zimmerman 1, near c of 9-1s-12w, abnd 2411 ft.

W. E. Bailor's Michael 2, se se se 27-1n-13w, Biehl 1746-59 ft, 20 bbls, 1759 ft.

W. E. Bailor's Liddle 4, se ne se 27-1n-13w, Biehl 1760-74 ft, 25 bbls, **1774 ft.**

Wayne County: Pure's Ruester 1, se se nw 2-1n-7e, Aux V 2928-57 ft, 116 bbls, 2957 ft.

Geo. Schoemaker et al's Fitch 1, se sw se 12-1n-9e, Aux V 3149-78 ft, 15 bbls, 3349 ft.

White County: N. V. Duncan Inc.'s Metcalf 2, ne sw se 31-3s-14w, Aux V 2877-2896 ft, 36 bbls, 2896 ft.

N. V. Duncan's Hon 2, se nw nw 6-4s-14w, abnd 3100 ft.

W. C. McBride's Hon A-2, se nw ne 6-4s-14w, Penn sd 1470-1511 ft, 81 bbls, 2322 ft.

ILLINOIS WELL DEEPENED

Wayne County: Wiser Oil Co.'s Matchett 1, n½ se ne 27-1n-6e, otd 3123 ft, Aux V 2953-73 ft, 135 bbls, 3140 ft.

ILLINOIS WILDCATS

Champaign County—Failure: R. F. G. Drlg. Co.'s Reynolds 3, c n½ se ne 1-22n-7e, abnd 295 ft.

Lawrence County — Discovery: Smith & Nye's Ridgley 1, sw se ne 11-2n-12w, Ben 1708-30 ft, 50 bbls, 1868 ft.

Mason County—Failure: Paul Steinberger's J. R. Hull 1, se sw nw 19-22n-6w, abnd 1401 feet.

Wayne County—Failure: Deep Rock's Toole 1, c nw nw 36-2s-7e, abnd 3535 ft.

White County—Failure: Miller Drlg. Co.'s Coleman 1, ne se sw 6-4s-11e, abnd 3175 ft.

Magnolia's Pomeroy 1, se ne ne 2-6s-10e, abnd 3200 ft.

White County—Discovery: W. C. McBride's Bailey 1, c sw se 3-7s-9e, Cypr 2684-98 ft and 2702-04 ft, 62 bbls, 3125 ft.

INDIANA

Gibson County: R. D. Brown's Lehman 7, ne sw ne 36-1s-10w, abnd 1806 ft.

INDIANA WILDCAT

Morgan County: Wayne County Prod. Co.'s McGaw 1, c e½ se ne 34-13n-1w, abnd 1277 ft.

KANSAS WILDCATS

Cowley County—Failure: J. J. Lynn's Newfield 1, c w½ nw ne 11-34s-4e, Miss 3104 ft, test 6 bbls, abnd 3124 ft.

Greeley County — Failure: Helmerich & Payne et al's McCormack 1, c nw ne 23-16s-40w, Viola 5649 ft, Arb 5715 ft, abnd 5785 ft.

Phillips County—Discovery: Cities Service's Templeton 1, sw se sw 14-5s-20w (new producing horizon for Hansen pool), Arb 3530 ft, perf csg 3530-3601 ft, 6500 gals acid, pump 383 bbls, 3780 ft.

Pratt County—Failure: Champlin's Allen 1, swc 15-27s-12w, Lans 3643 ft, Arb 4472 ft, abnd 4533 ft.

Reno County — Failure: Lauch - Moncrief's Witt 1, sec 12-25s-8w, Viola 4163 ft, Arb 4264 ft, abnd 4290 ft.

Russell County—Failures: Texas Co.'s Jellissen 1, nec se 13-13s-15w, Lans 2970 ft, Arb 3244 ft, abnd 3253 ft.

Kingwood's Bouska 1, nwc ne 14-15s-11w, Topeka 2640 ft, Arb 3358 ft, abnd 3392 ft.

KANSAS

Barton County — Kraft-Prusa: Lauck & Moncrief's Grosshardt 1, ne nw nw 16-17s-11w, Arb 3290 ft, pot flow 1658 bbls, 3299 ft.

Stanolind's Lamatsch 2, ne ne sw 16-17s-11w, Arb 3306 ft, abnd 3310 ft.

Cowley County—Delchman: Trees Oil Co.'s

Wells Completed in the United States in Week Ended June 19, 1943

Data preliminary and subject to revision. Revised and more complete data on all completions shown in monthly summary of drilling, published in second issue of each month. More detailed data on wildcats published in third issue of each month.

State or District	FIELD COMPLETIONS: New Wells *Oil	Gas	†Input	Dry	Total	Old Wells Deepened	WILDCAT COMPLETIONS *Oil	Gas	Dry	Total	ALL COMPLETIONS: This Week	Last Week	Cumulative: This Year	Last Year
Alabama														3
Arkansas	3			1	4						4	10	106	99
California	21	1		3	25						25	37	711	372
Colorado	1				1						1	1	10	5
Georgia									1	1	1		1	2
Illinois	13			6	19	1	2		5	7	27	25	843	892
Indiana				1	1				1	1	2	7	115	187
Kansas	13			3	16		1		6	7	23	36	754	750
Kentucky	4			4	8		2		1	3	11	2	135	64
Louisiana	8			3	11		2	1	4	7	18	12	282	505
North Louisiana	4			1	5		2		?	5	10	7	122	.....
South Louisiana	4			2	6			1	1	2	8	5	160	.....
Michigan	4	1			5				4	4	9	13	225	320
Mississippi													14	65
Missouri													7	15
Montana	4				4				1	1	5	14	101	78
Nebraska													1	25
New Mexico									1	1	1	8	118	192
New York	17		8		25						25	27	541	546
Ohio	3	9		5	17						17	17	399	517
Oklahoma	7		2	4	13	3		2	2	4	20	23	607	735
Pennsylvania	36	5		4	45	1					46	59	1,229	1,904
Tennessee													2	6
Texas	36	1	6	14	57	3	5		18	23	83	75	1,813	3,088
E.T. Border Co.'s												1	8	.....
East Texas Field			1		1						1	1	4	.....
Rest of E. Texas	3			1	4				2	2	6	2	107	.....
North Texas	5		5	7	17	1	2		2	4	22	18	415	.....
W. Cen. Texas	1			2	3				3	3	6	6	157	.....
West Texas	12				12	1	2		1	3	16	13	414	.....
Tex. Panhandle	4				4						4	5	100	.....
G. Coast, Upper	4			1	5				3	3	8	10	134	.....
G. Coast, Lower	5			1	6				5	5	11	13	276	.....
Southwest Tex.	2	1		2	5	1			2	2	8	5	168	.....
South Cen. Tex.							1			1	1	1	30	.....
West Virginia	1	5		1	7	1					8	14	274	337
Wyoming	1			1	2						2	4	59	35
Total U. S.	172	22	16	50	260	9	12	3	44	59	328	384	8,347	10,742

* Includes distillate wells. † Includes salt water disposal wells.

Franks 4, se sw se 23-31s-4e, Miss 2959 ft, abnd 2960 ft.

Ellsworth County—Stoltenberg: I. W. Murfin's Loula 3, c s½ sw se 28-16s-10w, KC 2980 ft, flow 192 bbls, 3012 ft.

Graham County — Morel: Cities Service's Buiter A-2, nw nw se 22-9s-21w, Arb 3874 ft, pump 1260 oil, 1740 wtr, 3836 ft.

Greenwood County—Virgil: Aikman & Braden's Hout 1, c sw nw 11-24s-12e, Miss 1750 ft, 1500 gals acid, pump 25 bbls, 1766 ft.

Pratt County—N. Iuka: Magnolia's Binger 3, c ne nw 31-26s-12w, Arb 4292 ft, pot flow 3000 bbls, 4323 ft.

Russell County—Greenvale: Cities Service's Marsh B-1, c s½ se sw 30-14s-12w, Gorham 3093 ft, pot pump 2669 bbls, 3096 ft.

Russell County—Witt: National Rfg. Co.'s Boxberger 4, se nw sw 3-14s-14w, Lans lm 2977 ft, 10,000 gals acid, pump 823 bbls, 3008 ft.

Russell County—Krug: National Rfg. Co.'s Krug 2, ne sw se 8-14s-14w, Lans 3045 ft, pump 240 bbls, 3148 ft.

Russell County — Hall-Gurney: Texas Co.'s Boxberger B-3, c nw ne 22-14s-14w, KC lime, 6000 gals acid, pump 174 bbls oil, 23 wtr, 3079 ft.

Alva Billings' Boxberger 1, nw se nw 21-14s-14w, cong 3289 ft, abnd 3320 ft.

Russell County — Forrest Hill: Lauck & Moncrief's Kluesner 2, c n½ ne nw 28-15s-12w, Arb 3273 ft, pump 1434 bbls, 3279 ft.

Stafford County—Sittner: Stanolind's Umstead 2, c s½ nw sw 28-21s-12w, Arb 3595 ft, 3500 gals acid, pump 299 bbls, 3609 ft.

Stafford County—Zenith: Derby's McNickle 4, c e½ sw ne 1-24s-11w, Viola 3724 ft, flow 85 bbls 2 hrs, 3765 ft.

Stafford County—Kipp: Skelly et al's Kipp F-2, c s½ se se 22-25s-14w, Lans 3698 ft, 5000 gals acid, pump 308 bbls, 3803 ft.

KENTUCKY

Daviess County: Farmer & Snider's O. C. Bolton 2, 16-N-30, abnd 1338 ft.

Henderson County: Sinclair Prairie's Burbank 13, 4-P-21, Mace 2611-20 ft, 262 bbls, 2731 ft.

Carter's Moore-Willett 1, 16-P-21, abnd 2633 ft.

Walter Sargent's Wile 2, 11-P-27, Palestine 1036-56 ft, 6 bbls, 1056 ft.

Milo Seigal et al's Blackwell 1, 19-P-27, Palestine 1041-59 ft, 60 bbls, 1063 ft.

Ohio County: Ellis Massey's Hewlett 2, 25-N-31, abnd 870 ft.

Union County: Ohio's Briscoe 5, 15-O-19, abnd 1399 ft.

Sun's W. Morgan 4, 20-P-19, Walts sd 1781-99 ft, 58 bbls, 1799 ft.

KENTUCKY WILDCATS

Daviess County—Discovery: Miller & Schiarella's Miller 1, 10-N-27, Bethel 1833-57 ft, 175 bbls, 1909 ft.

Henderson County—Discovery: Illey Browning et al's Strum 1, 9-N-23, Tar Sprgs 1961-76 ft, 135 bbls, 1976 ft.

Henderson County — Failure: Carter's Ohio Valley Trust Co. 1, 18-P-23, abnd 2715 ft.

NORTH LOUISIANA

Caddo Parish—Pine Island: O. R. Bolinger's Davis 1, se se 17-21n-14w, pump 20 bbls, 943 ft.

Caddo Parish — Caddo: Conway Oil Co.'s Muslow 1, ne nw nw 4-20n-15w, open flow 82 bbls, 1583 ft.

LaSalle Parish — Nebo Hemphill: Harry Shulman's Shapiro 5, 39-7n-3e, Wilcox, flow 124 bbls, 4278 ft.

Morehouse Parish — Beekman: Union Producing Co.'s Crossett Unit A-3, ne ne 5-22n-6e, abnd 6225 ft.

NORTH LOUISIANA WILDCATS

Bossier Parish—Pine Island 3-Mile East Extension: C. W. Beene et al's Fenet 1, sw ne nw 25-21n-14w, Nacatoch 994-996 ft, pump 12.5 bbls, 1006 ft.

Bossier Parish—Failure: Harry I. Morgan's Bollinger 1, lot 18, 38-23n-11w, abnd 6500 ft.

Concordia Parish—Lake St. John deep test: The California Company et al's Community 1, sw 4-9n-10e, Wilcox 3400-10 ft, flow 26 bbls, perf 3402-08, 30-gr, 24 hrs, td 9000 ft.

Natchitoches Parish—Failure: Bayou Pierre Co.'s Cunningham 1, sw sw sw irreg 47-10n-8w, abnd 2464 ft.

Bayou Pierre Co.'s Brown 1, sw 25-10n-8w, temp abnd 1505 ft.

SOUTH LOUISIANA

Calcasieu Parish—Starks: W. T. Burton's Lutcher-Moore 9, 2360 ft n, 330 ft e swc 17-9s-12w, abnd 9565 ft.

Iberia Parish—New Iberia: William Hells' Schwing 14, 2443 ft n, 226 ft e nwc 51 in 56-12s-7e, abnd 5285 ft.

Iberia Parish — Lake Fausse Point: Texas Co.'s State-Lake 13, 5982 ft e, 6828 ft n of swc 26-11s-8e in lake, 7-in 8988 ft, perf 8890-8918 ft, flow 260 bbls, 9/64-in, td 8988 ft.

Jeff Davis Parish — Roanoke: Union Sulphur's Stafford 1-A, n 89 deg 46 mins w 669 ft, n 44 mins w 665 ft fr sec 2-9s-4w, 5½-in 8690 ft, perf 8666-74 ft, flow 145 bbls, ⅛-in, td 8800 ft.

LaFourche Parish—Chacahoula: Sun's Dibert, Stark & Brown 17, 459 ft w, 919 ft n sec 72-15s-15e, 7-in 7200 ft, perf 8053-56 ft, flow 140 bbls, 7/64-in, td 8058 ft.

LaFourche Parish — Leeville: Texas Co.'s LLE-Leeville 89, 4236 ft s, 3267 ft w nec se 27 in 34-21s-22e, 7-in 10,087 ft, perf 9998-10,010 ft, flow 184 bbls, ⅛-in, td 10,114 ft.

SOUTH LOUISIANA NEW SAND

Vermilion Parish — Fresh Water Bayou: Humble's Louisiana Land & Fur 2, n 30 deg e 5280 ft fr Louisiana Land 1, 27-16s-1e, 2,088,000 gas, 10/64-in, td 11,811 ft, opens gas sand.

SOUTH LOUISIANA WILDCAT

Terrebonne Parish—Failure: Humble's Continental Land 2, Turtle Bay area, 25-17s-13e, abnd 11,273 ft.

MICHIGAN

Clare County—North Winterfield: Taggart Bros. Co.'s 84, c ne 1-20n-6w, Stray sand, 4,117,000 gas, 1323 feet.

Gladwin County—Bentley: Sun's Davis 2, se sw se 17-17n-2e, Dundee lime, pump 45 bbls, 3583 ft.

Mecosta County — Fork: Smith Pet. Co.'s Plummer 1, s½ se ne 7-16n-7w, Dundee lime, flow 811 bbls 11 hrs, 3856 ft.

Osceola County—Evart: Sun's Decker 1, c ne nw 28-18n-8w, Dundee lime, swab 35 bbls, 3782 ft.

Osceola County—Reed City: Louis Rose's Clark 1, w½ nw nw 4-17n-10w, Monroe lime, swab 16 bbls, 3535 ft.

MICHIGAN WILDCATS

Arenac County — Failure: C. W. Teater's Walker 1, s ½ sw sw 10-20n-5e, abnd 1745 ft.

Kalamazoo County — Failure: Wagenaar & Alexander's Dobbin 1, nw sw se 30-1s-12w, Traverse lime 1298 ft, abnd 1300 ft.

Newaygo County — Failure: Taggart Bros. Co.'s Olsen G2, e½ se se 16-14n-11w, Stray 1155 ft, abnd 1156 ft.

Van Buren County—Failure: Homrich & Kendall's Spinder 1, sw se nw 12-2s-17w, Traverse 1017 ft, abnd 1024 ft.

MISSISSIPPI WILDCATS

Copiah County—Failure: Freeport Sulphur Co.'s Richardson 1, jkd 631 ft.

Leake County—Failure: Freeport Sulphur Co.'s Bell 1, sw ne ne 29-10n-9e, abnd 2262 ft.

Madison County—Failure: Roeser & Pendleton's Bodie 1, nw sw 18-7n-1e, abnd 3939 ft.

MONTANA

Glacier County—Cut Bank: R. A. Kulberg's Tribal 1-205, se sw ne 25-32n-6w, swab 25 bbls, Lower Cut Bank 3705-3806 ft, td 3104 ft, elev 3718 ft.

Toole County — Kevin-Sunburst: Big West Oil Co.'s Dahlquist 21, se ne se 21-35n-3w, pump 8 bbls, Ellis-Madison 1761-64 ft.

Big West's Dahlquist 22, ne se se 21-35n-3w, pump 75 bbls, Ellis-Madison 1760-70 ft, shot 60 qts, acidized 1000 gals, td 1772 ft.

Texas' Davey 11, sw sw sw 3-35n-2w, pump 150 bbls oil, 3 water, Ellis-Madison 1670-75 ft, acidized 500 gals, td 1675 ft.

MONTANA WILDCAT

Pondera County—Midway Area—Failure: R. C. Tarrant's Anderson 1, cne se 26-28n-2w, Sunburst 1730 ft, abnd 1735 ft.

NEW MEXICO WILDCAT

Eddy County — Failure: Martin Yates and Ralph Nix's Matthews 1, c ne se 21-21s-28e, elev 3233 ft, Delaware 2960 ft, abnd 3535 ft.

OKLAHOMA

Creek County—Hickory Grove: Sun's Lowe 1, c sw se 10-14n-7e, Bartles 3217 ft, shot 60 qts, abnd 3327 ft.

LeFlore County—Spiro: Western Okla. Gas Co.'s Choate 1, c n½ ne nw 6-8n-24e, Cromwell 5260 ft, abnd 5325 ft.

Marshall County—Cumberland: Sun's Stout 1, se se se 18-5s-7e, McLish 6023 ft, flow 175 bbls, 6050 ft.

McLain County—Byars: Patsy O&G Co.'s Caldwell 8, s½ se ne 16-5n-3e, Viola 3544 ft, 1000 gals acid, flow 196 bbls, 3625 ft.

C. W. Roodhouse's Strawn 2, c nw ne 21-5n-3e, Trenton 3615 ft, abnd 3636 ft.

Noble County—Otoe City: Superior's Dent 1, ne ne nw 22-21n-1e, Layton 3883 ft, shot 40 qts, flow 262 bbls, 3410 ft.

Osage County — Country Club: Oklahoma

The OIL WEEKLY'S TRADING POST

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P. O. Box 2608 Houston, Texas

Nat. Gas Co.'s Osage 2143, se se ne 28-20n-12e, Burgess 1564 ft, gas storage, 1598 ft.

Osage County—Madalene East: T. O. Lillystrand's Osage 6, near c e½ ne 23-21n-10e, Arb 2508 ft, pump 15 bbls, 2530 ft.

Osage County—Hardy: A. G. Oliphant's Osage 2, ne ne ne 3-25n-3e, Layton 2600 ft, shot 20 qts, swab 15 bbls oil, 15 wtr, 2630 ft.

Pawnee County—Hallett: Danciger's Rinehart 1-A, c n½ sw 21-20n-7e, Skinner 2579 ft, pump 3 bbls oil, 12 wtr, 2764 ft.

Payne County—West Point: Amerada and Stanolind's Hesser 1, c n½ sw 28-20n-4e, salt water disposal, 4053 ft.

Pottawatomie County — Brooksville: Cities Service's Cade 3, c ne nw 3-8n-3e, dense 5085 ft, abnd 5143 ft.

Stephens County — Velma: Skelly's Stiefel 20, nw ne nw 35-1s-5w, sand 728-47 ft, shot 10 qts, pump 4 bbls in 6 hrs and pump off, 748 ft.

OKLAHOMA WELLS DEEPENED

Creek County — Slick: Whitfield & Cobb's Jack 1, se se sw 27-16n-10e, otd 2440 ft, Dutcher 2604 ft, flow 144 bbls, 2650 ft.

Osage County—Un-named: Reliable Oil Co.'s Osage 2, sw ne se 2-20n-10e, otd 2010 ft, Tucker 2176 ft, pump 50 bbls, 2190 ft.

Pawnee County — Hallett: Johnson O&R Co.'s Eickilberger A-2, c ne sw 10-20n-7e, otd 2656 ft, Wx 2952 ft, abnd 2976 ft.

OKLAHOMA WILDCATS

Carter County—Failure: Stanolind's Srasota 1, c ne ne 18-5s-1w, Viola 4868 ft, abnd 4949 ft.

Coal County—Discovery: Stanolind's Cushing Royalty 1, nw ne se 22-3n-9e, Cromwell 3524-64 ft and 3578-90 ft, perf csg 210 shots, 44,800,000 gas, 6174 ft.

Logan County—Failure: Continental's Clark 1, sw sw sw 17-16n-1w, 2nd Wx 5893 ft, abnd 5893 ft.

Okfuskee County—Discovery: Northern Ordnance's Bluementhol 1, c ne sw 7-13n-7e, Hunton 4016 ft, perf 4009-26 ft, 13,000,000 gas, 4124 ft.

EAST TEXAS

Anderson County—Cayuga: Carter-Gragg Oil Co.'s Bass-Skelly 2, E. Ritter sur, abnd 4170 ft.

Wood County — Hawkins: Humble's Scott 2-C, 2150 ft from m/n/n and 2350 ft from m/w/e lines E. Wideman sur, Woodbine 4648 ft, flow 239 bbls, ¼-in, perf 4788-96 and 4862-66 ft, td 4871 ft.

Humble's Preddy 1-B, 580 ft from m/w/w and 450 ft from m/n/s lines J. P. Mosely sur, flow 425 bbls 28.1-gr, ¼-in, perf 4627-39 ft, td 4752 ft.

Wood County—Quitman: Shell's Kirkland 1, 3150 ft ewl and 5440 ft nsl of Ed. Goodsir sur, elev 432 ft, Paluxy 6143 ft, flow 783 bbls 42.6-gr, ¼-in, perf 6154-80 and 6232-60 ft, td 6357 ft.

EAST TEXAS WELL DEEPENED FOR WATER DISPOSAL

Rusk County—Joiner Sector East Texas Field: Sinclair Prairie's Mayfield 21-B, J. B. Cadena sur, otd 3625 ft, injected 1182 bbls w 7 hrs by gravity, td 3780 ft.

EAST TEXAS WILDCATS

Houston County — Failure: A. W. Cherry-Barron Kidd's Moore-Gulf 1, 660 ft snl and 660 ft from se lines John Grissett sur, A429, 5 mi w Crockett, top Wilcox 1200 ft, Midway 4135 ft, Pecan 5852-6150 ft, Austin 6755-7107 ft, Woodbine 7206 ft, abnd 7426 ft.

Wood County—Failure: Sohio Producing Co. et al's Morgan 1, 2025 ft ewl and 2000 ft snl Harvey Hall sur, elev 497 ft, Pecan 2549 ft, Austin 4046-4154 ft, Woodbine 4624 ft, Georgetown 5310 ft, Trinity 6508 ft, Paluxy sand 6513 ft, abnd 6579 ft.

NORTH TEXAS

Archer County: Kesterman & Ward's Herron 3, 840 ft ewl and 900 ft nsl sec 12, blk 5, Clark-Plumb sur, pump 9 bbls, 872-80 ft.

C. G. Butts et al's Richardson 2, 1320 ft nsl and 990 ft wel lot 1, MEP&P sur, abnd 1265 ft.

Archer County—Cooper: Geo. W. Cooper et al's Perkins-Cullum 2, 660 ft out sec blk 69, S.P.Ry-KWVFL sur, flow 133 bbls, 14/64-in, acid 4000 gals Bend conglomerate 4919-59 ft.

Archer County—Scotland: Shell's Coleman 8-C, 660 ft snl and 580 ft ewl lot 1, ATNCL 79, Bend 5128 ft, pump 96 bbls oil, 12 water, acid 2000 gals 5128-82 ft.

Archer County—Vogtsberger: Fain & McGaha's Thorman 1-B, 1300 ft nsl and 2050 ft ewl H&TC 11, blk 1, Bend 5214 ft, Miss. 5278 ft, Ellen. 5287 ft, abnd 5387 ft.

Clay County: W. H. Spradling et al's Sunday 1-A, 1374 ft nsl and 660 ft ewl of 200½-ac tr, McGowan-W. F. Young sur, abnd 1145 ft.

Sussex Oil Corp.'s Chapin 2, 2475 ft ewl and 990 ft snl blk 81, Byers subdiv, abnd 1365 ft.

Jack County: Paul Steed et al's Jones 2, 494 ft snl and 467 ft ewl BS&F 2, abnd 3300 ft.

Wichita County—K-M-A-Ellenburger: E. C. Oil Co.'s Lewis 6-A-E, 660 ft nsl and 330 ft ewl KWVFL 20, Ellen. 4232 ft, flow 664 bbls ¼-in, acid 3000 gals 4239-79 ft.

Wichita County: Bourbon Roy. Co.'s Lockridge 1-A, 1143 ft wel and 6000 ft nsl L. Netherly sur A240, abnd 1806 ft.

C. Y. Gorman et al's Doyle 2, 1635 ft wel and 635 ft nsl of 315-ac tr, Geo. Wheelwright sur A320, abnd 346 ft.

Young County: A. G. Talbot and Schmitz's Ferguson 5, 1650 ft n and 950 ft w of m/s/se corner S. Tynes sur, pump 35 bbls, Strawn 3402-16 ft, td 3538 ft, pb to 3420 ft.

NORTH TEXAS WELL DEEPENED

Young County: Henry Zweifel et al's Martin 1, 330 ft out nwc J. Gates sur A111, otd 2518 ft, abnd 2560 ft.

NORTH TEXAS WATER FLOODING WELLS

Wichita County: Cable Oil Co.'s Willis 31-A-W, 1250 ft out sec BBB&C A37, sand 257-270 ft.

Cable's Willis 22-B-W, 1950 ft nsl and 650 ft ewl BBB&C sur, sand 239-48 ft.

Cable's Willis 23-B-W, 1950 ft nsl and 350 ft ewl BBB&C sur, sand 240-44 ft.

Cable's Willis 26-B-W, 50 ft ewl and 1650 ft nsl BBB&C sur, sand 236-43 ft.

NORTH TEXAS WELL DEEPENED FOR WATER DISPOSAL

Baylor County: Consolidated Oil Co.'s Portwood 14-D, 1320 ft nsl and 1650 ft ewl TE&L 1580, otd 1404 ft, td 2142 ft.

NORTH TEXAS WILDCATS

Montague County — Oil Discovery: Sinclair Prairie's Henderson 2, 291 ft from nw and 1539 ft from m/s/sw lines W. E. Martin sur, A-1111, 2 mi e by n Denver, Bend 5706 ft, Marble Falls 6253 ft, Barnett 6540 ft, Viola 6954 ft, Simpson 7106 ft, Ellenburger 7625 ft, pump 81 bbls 39.8-gr oil, 80 water, perf 25 shots 6073-87 ft, td 7766 ft, pb to 6144 ft.

Wichita County—Failure: Bridwell Oil Co.'s Cabe 1, 330 ft out nec 60-ac tr, Jas. Cole sur A37, abnd 2014 ft.

Wichita County—Oil Discovery: C. G. Johnson et al's Lowrance 1, 247 ft snl and 292 ft wel Tarrant CSL sec 27, pump 12 bbls, 640-643 ft.

Young County—Failure: Cochran & Cain's Hearne 1, 330 ft nsl and 1093 ft wel nw¼ BBB&C 2, abnd 651 ft.

TEXAS PANHANDLE

Hutchison County: Continental's Sanford 7-D, 985 ft nsl and 330 ft ewl n½ H&TC 76, blk 46, pump 162 bbls, 2822-84 ft.

Shamrock O&G Corp.'s Stewart 7, c nw sw

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AB&M 19, blk M-16, pump 61 bbls oil, 123 water, 3131-43 ft, td 3203 ft, pb to 3143 ft.

Sinclair Prairie's Weatherly 17, 1980 ft snl and 510 ft ewl A&B 23, blk Y, pump 250 bbls oil, 50 water, shot 150 qts 3027-72 ft, td 3075 ft.

Skelly-Cabot Carbon Co.'s Herring 10-A, 3646 ft snl and 1542 ft ewl of e-3011 ac of E. Almaguire sur, pump 150 bbls, shot 133 qts 3030-95 ft.

WEST CENTRAL TEXAS

Brown County: Central Texas Gas Co.'s Perry 6, 1100 ft snl and 320 ft ewl ET 11, abnd 952 ft.

Shackelford County: Roeser-Pendleton-Humble's Morris 11-55, 220 ft out swc ne ET 205, pump 35 bbls 1577-87 ft, td 1593 ft.

Stephens County—Donnell: Christie Bros. et al's Cunningham 1, 2400 ft nw and 600 ft ne of e corner sec 1122, but in TE&L 1210, abnd 4380 ft.

WEST CENTRAL TEXAS WILDCATS

Coleman County—Failure: Sohio Producing Co.'s Weatherred 1, 660 ft from m/s/n and 819 ft from m/e/w lines GH&H 69, blk 2, elev 1814 ft, Morris sand 2797-2801 ft, Gray sand 3325 ft, abnd 3348 ft.

Jones County—Failure: Harry Hines et al's Stephenson 1, 330 ft out swc n-80 of w-120-ac tr T&P 7, blk 16, elev 1693 ft, abnd 2195 ft.

Shackelford County — Failure: Roeser-Pendleton and Conoco's Cook 1-A-111, 1720 ft nsl and 339 ft wel of sw ET 111, abnd 1751 ft.

WEST TEXAS

Andrews County—Mascho: Belfort Oil Co.'s University-Texaco 2-F, c ne ne sec 10, blk 10, flow 160 bbls, 5/16-in, shot 780 qts 4290-4611 ft.

Cochran County—Slaughter: Bay Pet. Corp.'s Mallet-Humble 9, 580 ft out nec lab 19, leag 53, Scurry CSL, flow 552 bbls, 2-in, acid 6000 gals 5004-33 ft.

Crane County—Sand Hills: Lario O&G Co.'s Tubb-Humble 1, 2306 ft snl and 550 ft wel PSL 5, blk B-32, flow 1113 bbls, ½-in, acid 3000 gals, td 4683 ft.

Gaines County—Wasson: Continental's Wasson 4-B-53, 2086 ft out swc PSL 53, blk AX, flow 375 bbls, 2-in, acid 6000 gals 4925-56 ft.

Hockley County—Slaughter: Jerry Hawkins et al's Mallet 31-A, 580 ft out swc lab 18, leag 47, Edwards CSL, flow 511 bbls, cas, acid 11,500 gals 4921-64 ft.

Jerry Hawkins et al's Mallet 33-A, 580 ft out nec lab 18, leag 47, Edwards CSL, flow 1011 bbls, cas, acid 11,500 gals 4910-87 ft.

Pecos County — Apco: Bay Pet. Corp.'s Shearer-Humble 1, c s¼ of e¼ H&GN 99, blk 10, flow 662 bbls, ½-in, natural, Ellenburger perf 4628-80 ft, td 4705 ft.

Pecos County—Taylor-Link: Milton Unger et al's University-Shell 8-A, c sw nw sec 33, blk 16, flow 88 bls 1-in, shot 95 qts 1396-1422 ft.

Reagan County—Barnhart: Amerada's University 1-R-Q, c nw nw sec 9, blk 48, elev 2751 ft, base shale 8980 ft, flow 1493 bbls, 2-in, acid 2000 gals Ellenburger perf 9104-54 ft, td 9185 ft.

Amerada-Ogden & Hawn's University 1, c nw sw sec 2, blk 48, elev 2750 ft, base shale 8942 ft, flow 2422 bbls, 2-in, acid 3000 gals Ellenburger perf 9020-84 ft, td 9139 ft.

Yoakum County—Wasson: DeKalb Agricultural Assn's Armstrong-Humble 5, 4515 ft snl and 2085 ft wel sec 889, flow 613 bbls, 1-in, acid 10,000 gals 5010-77 ft.

Devonian Oil Co.'s Bennett 4, 760 ft snl and 560 ft wel sec 631, flow 568 bbls, plus 3.9% water, 2-in, acid 11,000 gals 5143-5291 ft.

WEST TEXAS WELL DEEPENED

Ward County: Tide Water Associated's Johnson 42, 330 ft from ne and 2972 ft from nw lines H&TC 28, blk 34, otd 2621 ft, flow 105 bbls, ¼-in, shot 145 qts 2905-3048 ft.

WEST TEXAS WILDCATS

Crockett County—Oil Discovery: Sohio Producing Co.-Moore Bros. et al's Shannon 1-12, 660 ft snl and 660 ft ewl sec 12, blk Q, John Small sur, elev 2671 ft, pump 45 bbls 28-gr oil, 8 water, shot 80 qts nitro 2380-98 ft and acid 1000 gals 2359-2402 ft, pay 2378-98 ft, in Grayburg (Permian), td 2457 ft, pb to 2402 ft.

Gaines County—Failure: Gulf's Kottwitz 1, c nw nw WT 92, blk G, elev 3291 ft, abnd in sul w 6070 ft.

Winkler County—Deep Pay Keystone: Amon G. Carter's Walton-Pure 2-C, c sw ne PSL 1, blk B-3, elev 2955 ft, San Andres 3515 ft, Clear Fork 4826 ft, Wolfcamp 7165 ft, Devonian 7324 ft, Silurian 7438 ft, Montoya 7775 ft, Simpson-Bromide 8185 ft, McKee 8650 ft, Waddell 8977 ft, Ellenburger 9217 ft, gas cap 9217-9524 ft, oil pay 9524 ft, flow 6788 bbls 40½-gr, gas-oil ratio 1567/1, ¾-in and 1-in cas outlet, natural, pay 9550-9655 ft.

TEXAS GULF COAST

Chambers County — Oyster Bayou: Sun's Middleton 5, 1695 ft fr sl, 2183 ft fr el T&NO 122, 5½-in 8361 ft, perf 8306-40 ft, flow 803 bbls, ¼-in, td 8375 ft.

Jefferson County—Clam Lake: Shell-Humble's McFaddin Trust 15, 660 ft s, 11 deg 45 mins e of McFaddin 9, S. A. Pace sur, A783, 5½-in 6126 ft, perf 6060-75 ft, flow 152 bbls, ½-in, td 6779 ft.

Jefferson County—Stowell: Glenn H. McCarthy's Shellhammer 1, 80-ac tr, lot 12, B. A. Vacocu Lge, Theo. F. Koch subdvn, abnd 9803 ft.

Phillips' Follmer 1, 40-ac unit, L. Lopez sur, 330 ft fr s&wl ne blk 16, dual completion, 5½-in 7935 ft, perf 7558-64 ft, flow 492 bbls ¼-in, perf 7820-26 ft, flow 748 bbls ¼-in, td 7941 ft.

TEXAS GULF COAST EXTENSION

Waller County—Katy: Kirby's Beckwith 1, 160-ac tr, H&TC 119, blk 1, ne flank, 5½-in 7339 ft, perf 6617-19 ft, flow 208 bbls, 10/64-in, td 7339 ft, extends oil prodn 1½ mi ne.

TEXAS GULF COAST WILDCATS

Jasper County—Failure: Houston and American Republics' Fee 1, 3800-ac tr, Salvador Castillo sur, 3 mi nw Bessmay, abnd 7406 ft.

Tyler County—Failure: American Republics and Houston Oil Co.'s Fee 1, 1874-ac tr, Higgins sur, abnd 8400 ft.

Wharton County—Failure: Sam G. Harrison and K. B. Knox's Wallace-Hancock 1, 11 mi se Hillje, 40-ac lse, L. L. Miller sur, A527, abnd 5611 ft.

LOWER TEXAS COAST

Jim Wells County—Seeligson: Transwestern's Seeligson 8-B, 660 ft fr sl, 2181 ft fr el sec 64, R. P. Haldeman subdvn, H. D. Koopman sur, 5½-in 6249 ft, perf 5905-10 ft, flow 94 bbls, 3/32-in, td 6252 ft.

Karnes County—Porter: Transwestern's Hilbrich 1, 660 ft fr ne, 626 ft fr nw'sel 128-ac tr, blk 4, Shaw & Harris subdvn, Victor Blanco gr, abnd 4855 ft.

Kleberg County — Stratton: Chicago Corp.'s Wardner 52, 7200 ft fr wl, 4110 ft fr sl 8862-ac tr, Paso Ancho de Arriba gr, 7-in 6628 ft, perf 6324-36 ft and 6291-6318 ft lower sand, perf 6138-42 ft upper sand, flow 115 bbls, 9/64-in, td 8010 ft.

Nueces County — Richard King: Southern Minerals' Richard King 6-C, 467 ft fr el, 1916 ft fr nl sec 9, 4871-ac lse, Casa Blanca Gr, 5½-in 6520 ft, perf 5330-40 ft, flow 73 bbls 3/32-in, td 5620 ft.

San Patricio County — Odem: Seaboard's Spiekermann 1, 930 ft fr wl, 467 ft fr sl blk 15-A, Cubage & Miller subdvn, 97-ac lse Juan Hart & Sons Gr, 5½-in 5375 ft, perf 5316-19 ft, flow 141 bbls, ½-in, td 5570 ft.

Seaboard's Welder Hrs 9-B, 500 ft fr n&wl's se sec 6, Cubage & Miller subdvn, J. de la Garza Gr, 240-ac tr, 5½-in 5548 ft, perf 5439-45 ft, flow 43 bbls, 7/64-in, td 5548 ft.

LOWER TEXAS COAST WILDCATS

Bee County—Failure: Bridwell Oil Co.'s Meyers 1, 495 ft fr ne&sel's 242-ac tr, n Beeville, J. A. Reed sur, abnd 3865 ft.

Karnes County—Failure: Plymouth Oil Co.'s Bridges 1, 330 ft fr nw&swl's 89-ac tr, Phineas Riley sur, A 243, 4 mi se Gillette, abnd 6290 ft.

Live Oak County — Failure: Continental's West 2, 330 ft fr nw & 875 ft fr swl lot 65, blk 35, Kittie subdvn George West Rch, 2 mi sw Oakville, abnd 2675 ft.

Nueces County—Failure: W. A. Richardson's Tally 1, 660 ft fr s&el sec 18, 80-ac tr, Driscoll Rch, 2 mi se Robstown, abnd 7510 ft.

DeWitt County—Failure: Pitkin - Goldston's Mugge 1, 660 ft fr ne&nwl's 101-ac tr, 2 mi w Nordheim, abnd 7815 ft.

SOUTHWEST TEXAS

Duval County—Strake: Stanolind and Mills Bennett's Farmers Life 4-A, 1650 ft fr wl & 660 ft fr nl SA&MG 2, A 527, abnd 3220 ft.

Starr County—Ulrich: Continental's Garcia 1, 330 ft fr s&wl's blk 27 Santiago Lopez porc 92, 340-ac tr, 5½-in 3980 ft, perf 3942-48 ft, flow 124 bbls, 3/16-in, td 3980 ft.

Starr County—Lockhart: Lockhart & Davenport's First National 1, 660 ft fr nl & 500 ft fr wl share 41-B, J. A. de la Garza Falcon porc 80, 36-ac tr, 7-in 3830 ft, perf 3570-3600 ft, flow 109 bbls, ¼-in, td 4110 ft.

Webb County—Dulup: Dulup Oil Co.'s Puig 4, 828 ft fr n&sl's, 525 ft fr e&wl's blk 43, Egington subdvn, De Arriba Gr, 7-in 1873 ft, gas sand 1818 ft, 350,000 gas, 2-in, td 1874 ft.

Dulup Oil Co.'s Puig 6, 330 ft fr n&el's blk 63, De Arriba Gr, 40-ac tr, abnd 1863 ft.

SOUTHWEST TEXAS WELL DEEPENED

Webb County—Glen: O. W. Killam's Bruni 5, 105-ac tr, blk 69, Brown subdvn, Las Albercas gr, old td 2235 ft, deepened to 3290 ft, abnd.

SOUTHWEST TEXAS EXTENSION

Starr County—Rincon: Highland Oil Co.'s Garcia 1, 330 ft fr s'ly sl & 330 ft fr w'ly el R. D. Storey sur 917, ½-mi sw prodn, abnd 4506 ft.

SOUTHWEST TEXAS WILDCAT

Duval County—Failure: H. J. Porter's Hay 1, 660 ft fr n&wl's e 170-ac of s 260-ac tr, Diego de Hinojosa Gr, abnd 5010 ft.

SOUTH CENTRAL TEXAS EXTENSION

Atascosa County—Imogene: Humble's Coward 1, ctr lot 382, Simmons subdvn Rogue Mauricio sur 604, 5½-in 7636 ft, acidized, flow 292 bbls, ½-in, td 7646 ft, extends prodn 8000 ft sw.

WYOMING

Natrona County—Cole Creek: General Petroleum Corp.'s 57-22-G (Gov't), nw sw se 22-35n-77w, abnd 4588 ft.

Park County—Elk Basin: Ohio's Mack-7 3, ne ne nw 31-58n-99w, flow 1064 bbls, ¾ mile west extension Tensleep zone, Tensleep 4645 feet, 7-in 4854 ft, perforated 4654-4824 ft, td 4854 ft.

United States Wildcat Starts

ALABAMA

Escambia County: Hunt Oil Co.'s Miller Mill 1, ne sw 27-3n-11e, spud.

Monroe County: James Duffy's Moore 1, se se 28-7n-5e, lcn.

Tuscaloosa County: Stanolind's Sandel 1, 2-18s-19w, dr.

ARKANSAS

Calhoun County: Garland Anthony's Brazil 1, sw se sw 25-11s-13w, lcn.

Placid Oil Co.'s Southern 1, se sw 22-16s-13w, dr.

Cleveland County: Lion's Holderfield 1, ne ne sw 21-10s-9w, dr.

Columbia County: Northern Ordnance's Waggoner 1, nw ne 10-19s-23w, mim.

Hempstead County: Barnsdall's Schultz 1, e½ ne ne 32-13s-26w, woc.

Logan County: Star Mfg. Co.'s Foster 1, sw ne 26-5n-28w, mi.

Miller County: N. Hobson Wheless' Wisinger 1, nw se 9-20s-27w, spud.

Nevada County: Plymouth Oil Co.'s Grove 1, se ne 21-14s-20w, spud.

Ouachita County: DeKalb Assn.'s McGaughy 1, nw sw 31-14s-18w, dr.

DeKalb Assn's Berg & Berg 1, sw nw 31-14s-18w, rig.

Plymouth Oil Co.'s Grove 1, se ne 21-14s-20w, spud.

Union County: L. B. Manley's J. W. Edwards 1, sw sw sw 2-19s-18w, lcn.

CALIFORNIA

Kern County: Standard's 89-7, se se nw 7-30-22, McKittrick area, lcn.

General Petroleum Corp.'s Bradford 1, ne se ne 15-28-28, in area between Round Mountain and Kern River fields, lcn.

Los Angeles County: V & F Oil Co.'s Grazide 1, nw nw ne 27-2-10, Puente Hills area, lcn.

San Joaquin County: Bankline Oil Co.'s Comm. 22A-1, ne se se 22-4-7, Lodi area, lcn.

Ventura County: Inter Counties Fuel Co.'s Phillips 2, 29-5-19, Sespe area, lcn.

GEORGIA

Mont Warren et al's A. C. Chandler 1, 250 ft from sl, 968 ft from el of n ⅓ of land lot 406, district 26, lcn.

ILLINOIS

Bond County: Louis Lilly's Martin 1, sw sw se 24-4n-2w, dr.

Hamilton County: Magnolia's Karcher Unit 1, ne ne se 2-4s-5e, lcn.

Texas Co.'s McMahon 1, sw ne sw 24-6s-7e, lcn.

Jefferson County: Nash Redwine's Benoist Bros. 1, ne ne se 26-1s-3e, lcn.

Montgomery County: W. R. Holmes' Mueller 1, ne se sw 31-8n-5w, lcn.

St. Clair County: G. A. Morris' Press 1, se sw nw 34-1s-8w, dr.

Washington County: Fisher Oil Co. et al's Rossell 1, se se ne 9-1s-4w, lcn.

INDIANA

Pike County: J. B. Graham's Adams 1, c nw nw 15-1n-7w, lcn.

KANSAS

Cowley County: E. S. Adkins et al's Wright 1, nw se sw 26-33s-3e, mi.

Jefferson County: Sagamore's Snyder 1, c se nw 31-9s-19e, lcn.

Leavenworth County: Charles Miller's Blinn 1, nwc se 12-11s-20e, dr.

Marion County: Wolf Creek and Falcon Seaboard's Deuerkson 1, c w½ ne ne 29-19s-1e, dk.

Sunray & Mabee's Fast 1, se sw nw 7-21s-1e, dr.

Morton County: V. R. Wyatt et al's Craver 1, sec sw 32-35s-42w, mi.

Ottawa County: Auto Ordnance and Helmerich & Payne's Gekler 1, nwc 20-12s-2w, pits.

Phillips County: Barnett Drlg. Co.'s Rundle 1, c nw nw 18-5s-19w, mi.

Rooks County: Cities Service's Stahl 1, nwc sw 12-9s-18w, lcn.

Rush County: Falcon Seaboard et al's Baker 1, c s½ se nw 35-17s-18w, lcn.

Saline County: Wolf Creek Oil Co.'s Karber 1, c s½ sw se 9-16s-1w, rust.

Charles M. Coats et al's Applequist 1, c sw se 5-16s-3w, dr.

KENTUCKY

Edmonson County: J. Miller Ross' H. Carroll 1, 7-J-39, dr.

Henderson County: Carter's W. D. DeVasker 1, 24-O-24, lcn.

Union County: J. H. Gilliam's E. T. Clements 1, 3-O-19, dr.

NORTH LOUISIANA

Bienville Parish: Placid Oil Co.'s Nebo B-1, sw ne 13-15n-7w, dr.

Bossier Parish: Carter's Bolinger 1, se nw 20-22n-11w, lcn.

A. D. Simpson et al's Fenet 1, nw sw ne 25-21n-14w, lcn.

Caddo Parish: Frank J. Hall's Breard 1, c se 9-18n-16w, dr.

H. C. Owens et al's Caddo Levee Board 1, se se 12-22n-16w, lcn.

Durbin-Bond et al's Simpson 1, sw se 17-16n-15w, dr.

Catahoula Parish: California Co.'s Eckhardt 1, ne ne 12-9n-7e, dr.

Sinclair Prairie's State 1, nw se 3-9n-7e, sd acc't high water.

Claiborne Parish: Benedum-Trees Co.'s G. H. Vaughn 1, c ne nw 23-23n-5w, dr.

Frank & George Frankel's Muslow 1, c w½ ne nw 30-21n-7w, dr.

Concordia Parish: Gulf's Nelms 1, sw ne 10-1n-8e, wo.

Jackson Parish: Mid-Continent's Tremont 1, se ne 31-15n-3e, mim.

Morehouse Parish: McElreath et al's Bonita 1, nw nw 11-22n-9e, lcn.

Red River Parish: Charles C. Lowrey's Christopher A-1, sw sw 16-13n-10w, lcn.

Sabine Parish: H. D. MacDonald's Long Bell 1, se sw 34-9n-13w, wo.

Seaport Oil Corp. et al's Phares 2, ne nw sw 4-5n-12w, wo.

Tensas Parish: Carter's Shelley 1, sw ne 19-11n-10e, dr.

Webster Parish: J. I. Roberts et al's Garland 1, ne se 24-22n-9w, rig.

East Carroll Parish: Hunt Oil Co.'s Continental 1, nw sw sw 77-22n-13e, spud.

SOUTH LOUISIANA

East Baton Rouge Parish: Shamrock Oil Co.'s Phillips 1, 1547 ft s, 92 ft e nwc 44-8s-2e, lcn.

MICHIGAN

Berrien County: John M. Benson's Seel 1, ne ne nw 24-4s-17w, rig.

Clare County: Rowmor & Leonard's Miltner 1, s½ sw se 1-20n-6w, dr.

Isabella County: Gordon Oil Co.'s Gingrich 1, w½ nw ne 7-15n-6w, dr.

Newaygo County: Taggart Bros. Co.'s Olsen G2, e½ sw se 16-14n-11w, dr.

Osceola County: H. H. Coffield's Schwalm 1, n½ se se 22-17n-10w, lcn.

Roscommon County: Mogul Oil Co.'s Alderman 1, nw se se 19-22n-4w, dr.

Van Buren County: Fisher-McCall's Donovan 1, se sw sw 25-2s-16w, lcn.

Washtenaw County: W. H. Colvin's Voss 1, sw nw ne 16-1s-7e, dr.

MISSISSIPPI

Adams County: The California Co.'s Natural Gasoline Co. of La. 1, dr.

Clarke County: Irion's Long Bell 2, sw nw 14-2n-16e, spud.

Copiah County: Freeport Sulphur Co.'s Jones 1, nw ne 29-10n-9e, dr.

Hinds County: W. L. Gholson's Hall 1, nw sw 36-8n-3w, lcn.

Jefferson County: Gulf's Cupit 1, ne sw 19-8n-4e, dr.

Lawrence County: William Helis' Dinkins 1, w½ nw nw 28-5n-11e, lcn.

Madison County: Tip Ray and H. I. Morgan's Harper 1, nw se 9-10n-4e, rig.

Marion County: Gulf's Bradshaw 1, ne ne 20-3n-17w, dr.

OKLAHOMA

Comanche County: Parker Drlg. Co.'s Spence 1, c ne ne sw 22-3n-10w, dr.

Creek County: L. B. Jackson's Childress 1, se se nw 32-18n-9e, rum.

Kay County: F. C. Miller's 1, c ne sw 9-26n-3e, rum.

Lincoln County: S. B. Logan's Barry 1, ne se nw 4-13n-4e, woc.

Love County: Mid-Continent's Lowman 1, se ne se 34-6s-2e, lcn.

Okfuskee County: Amerada's Kennedy 1, se ne nw 27-12n-10e, dk.

Osage County: Ben Blubaugh's Osage 1, 8-23n-12e, dr.

Pawnee County: George D. Blaylock's Campbell 1, se ne se 5-20n-5e, wor.

Pottawatomie County: Atlantic's Muck 1, ne ne se 2-10n-3e, c&p.

Seminole County: W. J. Martin's Easley 1, nw nw se 34-7n-5e, lcn.

EAST TEXAS

Hunt County: Ohio Oil Co.'s Langford 1-a, 2467 ft snl and 1904 ft wel Jas. Hamilton sur, rig.

Rusk County: Trentman Oil Co.'s Evans 1, 3330 ft sw of ne and 1780 ewl 290-ac tr and Thos. H. Hopgood sur, 3½ mi ne New Salem, rur.

WEST TEXAS

Andrews County: Sinclair Prairie's Ratliff-Bedford 1, c nw nw PSL 14, blk 73, lcn 11,000-ft test.

Borden County: Coffield & Guthrie's Conrad 1, c nw¼ LN 79, blk 20, elev 2321 ft, San Andres 2080 ft, to dd from 3874 ft to 4500 ft.

Crockett County: John I. and P. D. Moore's Shannon 1-32, c se sw GC&SF 32, blk 1, lcn.

Dawson County: Darby Pet. Co.'s Harris 1,

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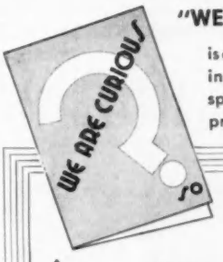

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PHILADELPHIA, PENNSYLVANIA

Our courteous and competent staff will give you the utmost in friendliness, comfort and service. Conveniently located to all stations, and only five minutes away from the heart of the business section.

600 ROOMS
Each with bath from $3.00 up

RADIOS IN EVERY ROOM

Lounge and Restaurants
Unrestricted Parking to 3 a.m.

440 ft out swc lab 16, leag 268, Moore CSL, lcn 5500-ft test.

Irion County: Pure Oil Co.'s Sugg 1, 1980 ft wel and 660 ft snl sec 1942, A. H. Atlhafen sur A4, lcn 3500-ft test.

Mitchell County: Anderson-Prichard-Standard of Texas' Miller 1, ne ne nw T&P 22, blk 28, T-1-N, Ellenburger test Westbrook field.

Ben Dansby, Jr. et al's (was Joe C. Maxwell) Jones 1, ne ne ne H&TC 33, blk 26, elev 2239 ft, dd from 3205 ft to 4200 ft.

Terrell County: W. Henry Schooler-Norman Curtis' Allison-Merck 1, 660 ft nsl and 1980 ft wel CCSD&RGNG 5, blk B-2, lcn 3500-ft test.

WEST CENTRAL TEXAS

Jones County: Hunter-Hunter et al's Bert Fields 1, c sw nw T&P 48, blk 15, lcn 3500-ft test.

TEXAS GULF COAST

Brazoria County: Stanolind's Holland 1, Anchor area, 612-ac lse, George Robinson sur, lcn 11,000-ft test.

LOWER TEXAS COAST

Bee County: Mackhank Petroleum Co.'s Freeland 1, Cosden area, 495 ft fr e&sl 350-ac tr, John Pace sur, A247, lcn 7500-ft Wilcox test.

Jim Wells County: Kilgore Developers and Atlantic's Weldon 1, 330 ft fr sw and 1190 ft fr sel blk 10, Dibbrell, Soyars & Gallagher subdvn, Casa Blanca Gr, lcn 6000-ft test.

Karnes County: H. H. Howell's Demmer 1, 660 ft fr ne&sel 246-ac tr, J. Dupong sur, A367, lcn 6000-ft test.

Live Oak County: Continental's West 3, 990 ft fr nwl, 675 ft fr swl lot 65, blk 35, George West Rch 894-ac tr, Michael Caronican sur, 2 mi sw Oakville, lcn.

Henderson Coquat and Dirks Bros.' Knight 1, 660 ft fr s&el tr 6, J. R. Johnson sur, A 263, 7½ mi e Oakville, lcn 8200-ft test.

San Patricio County: Coastal Refineries' Caldwell 1, 1 mi e Edroy, 1980 ft fr el, 660 ft fr nl sec 11, Cubage & Miller subdvn, Julian de la Garza Gr, lcn.

Victoria County: Continental's Maroney 1, 330 ft fr nw&swl 60-ac tr, Polito Castillo gr, 1 mi nw Bloomington, lcn.

SOUTHWEST TEXAS

Jim Hogg County: Sun's Weil Bros. 6, Well area, 1940 ft fr el, 3568 ft fr nl blk 4, Palitos Blancos Sais gr, lcn 6000-ft test.

McMullen County: Quintana's South Texas Syndicate 6-C, Green's Branch area, 1000 ft fr el, 1650 ft fr nl William Dougherty sur 1, lcn 6500-ft test.

Starr County: Hagan & Stewart's Rames 1, 660 ft fr sw, 2903 ft fr sel AB&M 150, 19 mi n Roma, lcn 1350-ft test.

Zapata County: V. G. Schimmel's Fee 1, 660 ft fr nw, 2448 ft fr nel share 2, 634-ac tr, 12 mi se Zapata, lcn 3100-ft test.

SOUTH CENTRAL TEXAS

Kimble County: J. C. Renfro's Murr 1, 660 ft fr n&el NE Dan Murray sur, 160-ac tr, lcn.

Medina County: H. M. Roark's Wiemers 1, 160-ac tr, John Tag sur 213, 3½-mi se Hondo, lcn 1800-ft test.

Travis County: B. E. Pierce's Acklin 1, 2150 ft fr swl 101-ac tr, Wayman Wells sur, lcn.

Williamson County: John H. Foster's Palm 1, 80-ac tr, Willis Donohoe and P. A. Holder surveys, 3 mi ne Round Rock, lcn 1200-ft cable-tool test.

Williamson County: L. Underwood Roundtree's Seggern 1, 82-ac tr, Hardy Pace sur, 5 mi e Taylor, lcn 1000-ft cable-tool test.

Squeaks from the Bull Wheel

Vindicated

"Willie, something tells me you didn't go to church at all. What was the sermon about?"

"The text was—let me see—something about 'Keep your shirt on and you will get a blanket.'"

"I don't believe it. There's nothing like that in the Scriptures. I'm going to call the minister and ask him."

She called the minister, who informed her that his text was, "Be patient and the Comforter will come."

Unexpected Help

Landlord: I'm going to raise your rent next month.

Tenant: Thanks, old man. I was just wondering how I could do it.

Try, Try Again

I had to stay after school because of perseverance, Dad.

How did that happen?

I couldn't spell it.

Bother

Said the soldier to the star in his arms: "Do your eyes bother you?"

"Why no."

"That funny, they're *killing* me."

Helpful Suggestion

Myrtle: "John's got his home guard uniform now, and he's dying for a parachute jumper to come along."

Phyllis: "Well, why don't you knit him one?"

Honest Juror

A gangster on trial for murder bribed a juror to hold out for a verdict of manslaughter. After being out for a long time, the jury returned the desired verdict.

"I'm very grateful to you," the gangster told the juror. "Did you have much trouble?"

"Sure did," he replied. "I had a hard time. All the rest wanted to acquit you."

Fisherman's Success

Well, been fishing, eh? Caught anything, old man?

Yes. Caught the 9:10 there and the 5:47 back. Caught in a storm. Caught cold. And boy, will I catch it when I get home.

Non-Stop Trip

"But, Betty, don't you trust me?"

"Yes, Lloyd, I'll go to the ends of the earth with you; but I absolutely refuse to park on the way."

HOUSTON LABORATORIES
Analytical and Consulting Chemist
Podbielniak Gas Analysis
Oil Field Brines, Waters and Cores
Complete Evaluation of Crude Oils
Long Distance 267, Box 132, Houston, Tex.

THE FORT WORTH LABORATORIES
Analysis of oil field brines, cores, gas, oil and minerals. Field gas testing. R. H. Fash, Vice President; Long Distance 138. 823½ Monroe Street, Fort Worth, Texas.

W. P. JENNY
Consulting Geologist and Geophysicist
Specializing in MICROMAGNETIC SURVEYS, GEOLOGICAL INTERPRETATIONS and CORRELATIONS of seismic, gravimetric, electric and magnetic surveys.
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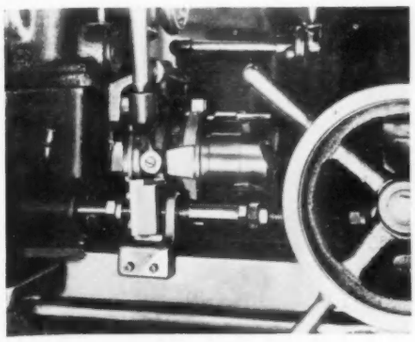
SOONER PIPE & IRON COMPANY
15 East Cameron
Tulsa, Okla.

Notes for the Equipment Buyer and User

Quick Opening Mechanism For Die Heads

LANDIS MACHINE COMPANY

Landis Machine Company, Waynesboro, Pennsylvania, has developed a device for instantaneously opening the die head on bolt threading machines so that the travel of the carriage will not effect the lead or pitch diameter of the work.



Landis Mechanism

This quick-opening mechanism comprises a spring in combination with a latch and latch block arrangement in addition to the conventional yoke employed to open and close the head. In operation the yoke is employed to close and latch the head within itself. When the head is in the closed position, the yoke also locks independently of the die head. As the yoke closes the head, spring tension is built up in an extension spring, one end of which is anchored to the machine bed and the other end of which is attached to the yoke. As the threading operation progresses to the point where the die head is to be opened, a sleeve on the trip rod raises the latch from the latch block, thus releasing the yoke and permitting it to snap back quickly, causing the head to open instantaneously.

The mechanism is fully adjustable for threads of different lengths by moving the latch-operating sleeve on the trip rod and by moving the latch-block bracket along the ways of the machine. Means are also provided to adjust the tension of the spring.

Any Landis 7/8-inch single- or double-head threading machine can be equipped with the device.

Motor Starter

ALLIS-CHALMERS MANUFACTURING COMPANY

Allis-Chalmers Manufacturing Company, Milwaukee, Wisconsin, announces Type H motor starter, a metal-enclosed structure similar to metal-clad switchgear. High interrupting capacity disconnecting-type fuses are utilized in combination with a heavy-duty oil switch.

Type H starters have been developed for both induction and synchronous-type motors rated up to 1000 horsepower at 2300 volts and 1750 horsepower at 4600 volts, 3-phase, 60 or 50 cycles. Their usages cover: full or reduced voltage starting, dynamic braking, reversing and special applications.

Short-circuit protection up to 160,000 kva at 2300 volts and 320,000 kva at 4600 volts eliminates the need for a back-up breaker within these kva ratings. Disconnecting type fuses combining high interrupting capacity with fast-clearing action, hold short circuit currents to safe values which do not damage the control. Fuses operate only under actual short circuit conditions and will not blow unnecessarily.

The new Type H starters protect motors from sustained overloads, locked rotor condition, single phasing and overloading caused by too frequent starting by means of termal overload relay accurately calibrated.

Brazing

Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pennsylvania, has published a new 12-page booklet on how to braze with Phos-Copper brazing alloy. This alloy, it is said, saves time, machines and manpower and can be used with gas, incandescent carbon or electric furnaces. It is free-flowing at 1382° F., possesses maximum uniformity, high tensile strength and stress cycle, and 98 percent electrical conductivity of joint, resists corrosion and can be tinned or electric plated.

Gold Star Award Made To Wickwire Spencer

The Palmer, Massachusetts, wire rope plant of Wickwire Spencer Steel Company, has been awarded its first gold star by the United States Maritime Commission. Last October, the plant received the Maritime M, the first such award to any New England firm.

Army-Navy E Award Made To Sullivan Company

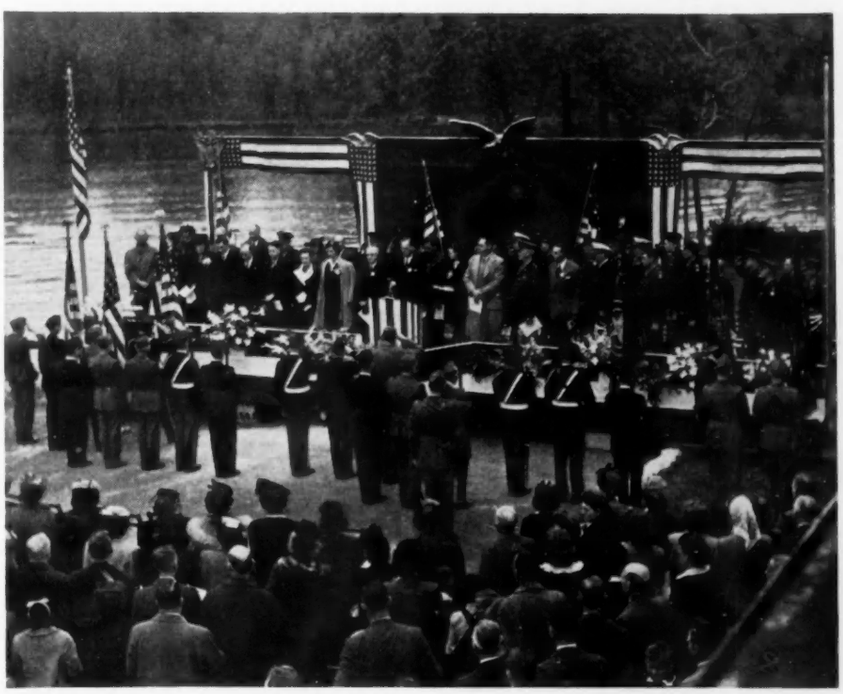
Sullivan Machinery Company, Michigan City, Indiana, has been awarded the Army-Navy E. Rear Admiral H. G. Taylor, U. S. Navy, presented the "E" flag to F. W. Copeland, company president, and Colonel Martin H. Ray, U. S. Army, presented token pins to veteran employes of the company.

Manganese Steel

American Manganese Steel Division of American Brake Shoe Company, Chicago Heights, Illinois, has pubilshed a new bulletin on manganese steel for general industry. The booklet gives a thorough discussion of what manganese steel is and its applications.

Quick Detachable Sheave

Worthington Pump and Machinery Corporation, Harrison, New Jersey, has issued a new bulletin describing Worthington quick detachable sheaves which are now available for driver and driven units. This type sheave is recommended for all V-drive applications.



Climax Engineering Company was awarded the Army-Navy E, at Clinton, Iowa, recently. Presentation was made by Brigadier General Norman F. Ramsey, and Commander A. F. Duernberger presented "E" pins to employes. E. F. Deacon, president of the company accepted the awards.

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Gas Measurements	Compressor Plants
Bottom-Hole Pressure	Estimate of Results
Coring Equipment	Supervision
Core Analysis	Installation
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We invite your inquiries and would like to cite you references and show you actual performance records.

PETROLEUM ENGINEER

JO H CABLE

WICHITA FALLS TEXAS

Reprints of *"Water Flooding in Texas"* and *"Gas Repressuring in Texas"* available on request to P. O. Box 2249, Wichita Falls, Texas

Men in the Industry's News

FRANK CHAMPION, known to oil and equipment men throughout the world, has resigned his position as general manager of Byron Jackson Company and has been made general manager of the Glenn McCarthy interests of Houston. The Glenn McCarthy properties include an oil-producing company, drilling contracting company, a truck line and other interests. Champion remains a director of Byron-Jackson Company. He will make his home in Houston.

JOHN L. YORK has recently been appointed advertising manager for Clark Bros. Company, of Olean, New York. His headquarters will be in Olean.

O. W. MORGAN, JR., has been appointed sales manager of the oil-tool division of Byron Jackson Company. "Ox," as he is known to his friends, has a background of several years in various offices of the company, and will make his headquarters in Los Angeles. Garth F. Nicholson has been promoted to the combined position of works manager and chief engineer of the oil-tool division.

PORTER L. HOWARD has been appointed deputy director of the division of petroleum and other liquid transport of the Office of Defense Transportation. Howard, who was general traffic manager for Sun Oil Company before joining ODT last February, will continue to serve in the coordination of ODT services in the transportation of oil by rail, water, pipe-line and truck.

PAUL H. THIBODAUX, Shreveport, has been appointed assistant general superintendent for War Emergency Pipe Lines, Inc., on the big-inch project. He has been affiliated with Arkansas Fuel Oil Company since July, 1926. For the past five years he served as assistant manager for the company and in March of this year he was appointed manager. P. H. DuVal of Longview, superintendent of the oil pipe line department of the East Texas division, will move to Shreveport as manager.

W. D. HARRIS, dispatcher for Empire Pipe Line Company at Ponca City, has been granted a leave of absence to join War Emergency Pipe Line, Inc., at Cincinnati, Ohio.

RALPH D. CURTIS, former Barnsdall Oil Company engineer in Oklahoma, who is now a captain in the Army, has been assigned to the Army-Navy petroleum board in Washington.

W. M. SCHUL, Phillips Petroleum Company, has been elected chairman of the Seminole chapter, API Division of Production.

O. A. BINGMAN, pioneer producer and drilling contractor, Okmulgee, died June 7 at Tulsa.

PIERRE LaFLEICHE has been named oil and mining supervisor for Wyoming. He previously held the position for six years but resigned to become a consultant.

DR. C. C. SUN, senior geologist of the China geological survey and resources commission, toured Oklahoma oil fields last week, studying production methods.

PAUL M. RAIGORODSKY has resigned as assistant director of the natural gas and natural gasoline section of PAW, effective July 1. He will return to the oil business in which he was engaged before joining PAW in September, 1941. He is vice president and general manager of Petroleum Engineering, Incorporated, and of Glen Rose Gasoline Company.

FRANKLYN WALTMAN has been appointed director of public relations for Sun Oil Company and will make his headquarters at Philadelphia. He succeeds the late Judson C. Welliver who served in the same capacity during the past 12 years. Edwin W. Gableman, former chief Washington correspondent of the Cincinnati Enquirer, has succeeded to Waltman's duties handling publications for Sun Oil Company in Washington.

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